MARCH 2, 1939

NEWS

ENGINEERING NEWS-RECORD

MARCH 2, 1939

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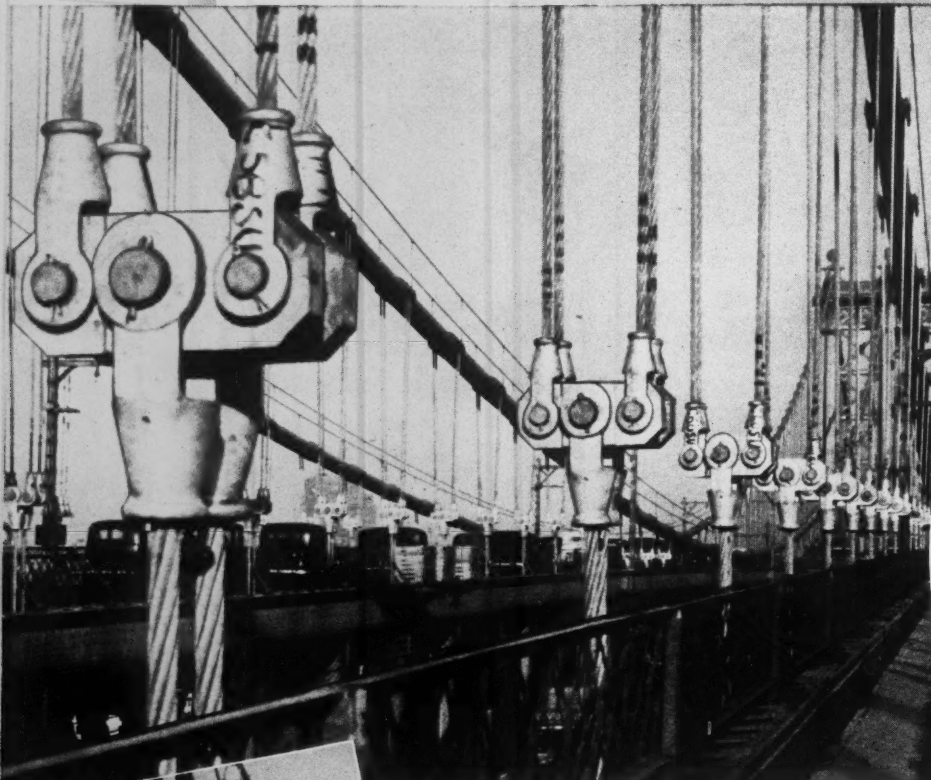

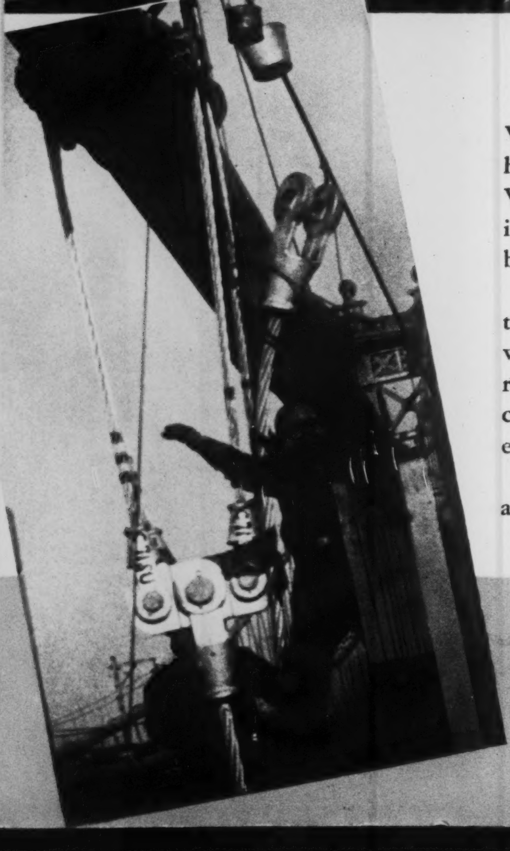

When heavy traffic moves over the Manhattan Bridge to and from the New York World's Fair, it will travel in greater safety, insured in part by Republic Upson Quality bolts, nuts and pins.

In anticipation of the added burden on the structure, supporting members which will be subjected to heavy stress have been replaced. The new bolts and pins for the cable clamps, suspender rope sockets and equalizer beams are Republic Upson Quality.

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NEWS

ENGINEERING NEWS-RECORD

Volume 122 MARCH 9, 1939 Number 10

NOTEBOOK NEWS

Quick Surveys of Construction Events

► National conventions in New York and Los Angeles last week exposed engineers to new knowledge of concrete and asphalt respectively. Mechanization of asphalt road building is advancing at a very rapid rate, according to our staff report of the Asphalt Institute convention, p. 2. Bond and bleeding were outstanding subjects at the American Concrete Institute meeting, p. 7. The problem of bond stress was put on the shelf twenty years ago as solved, but changes in concreting practices make a new evaluation necessary. In bleeding, water does not "come to the surface" as popularly supposed but, according to reported research, the concrete settles away from the water.

► Speaking of concrete, a United Press item from Berlin states that concrete for seven large dams in the Hartz mountains will be mixed with ice instead of water. Good title for the story "Ice Cubes for Aggregates"?

► Michigan cities may issue revenue bonds to purchase parking lots, according to a bill passed by the legislature.

► Arkansas has been added to the list of states requiring general contractors to secure a license.

► Bids are to be called soon on the work of enlarging and extending the tunnels of the Old South Penn R.R., abandoned for 50 years and now to be used for a highway. The original plan was to include both driving and lining in one contract in the belief that much overbreak would be eliminated thereby, but that has not been found possible.

Purchase Price Set For New York Subway

Negotiators for New York City and for the Brooklyn-Manhattan Transit Co., owner of the B.M.T. subway lines, have agreed on a basic price of $175,000,000 for which the city will acquire the subway, elevated, street car, bus and power plant properties of the B.M.T. Payment will be made in 3 per cent city bonds. The agreement, which is oral and subject to certain technical conditions involving taxes on the transfer, will have to be approved by the city government and the transit company. The city bond issue was made possible by an amendment to the state constitution approved last fall under which the city was authorized to issue $350,000,000 in bonds outside of debt limits to finance transit unification.

The B.M.T. is one of three rapid transit lines operating in the city, the other two being the Interborough Rapid Transit or I.R.T. and the municipally-owned Independent Subway System. The Manhattan Railway Co. owns certain elevated lines in Manhattan, but these are operated under lease by the I.R.T. Both the I.R.T. and the Manhattan are in receivership, and the city is currently negotiating for their purchase.

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Super-Highways Planned For Chicago

A plan for construction of five superhighways to cost about $100,000,000 has been drafted at Chicago, the cost to be shared between the city, Cook County and the state. The city will ask the state assembly for legislation permitting it to raise its share of the cost through sale of bonds against the city's allotment of future state gasoline tax receipts. Two routes would extend to the west side, and one each to the northwest, southwest, and southeast.

Pollution Control Is Proposed

Substitute for Barkley bill provides for court enforcement of stream pollution regulations

A stream pollution bill involving elements of compulsion which were absent from the Barkley bill introduced into the Senate last month (*ENR*, Mar. 2, 1939, p. 71) was introduced Mar. 3 by Senator Clark. The Clark bill would form a division of water pollution control in the Corps of Engineers, whereas the Barkley bill would place the division under the Public Health Service.

In the Clark bill, the water pollution

(*Continued on p. 7*)

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Michigan Authorizes City Parking Lots

Michigan municipalities are permitted to operate and maintain automobile parking facilites and to issue revenue bonds for their construction or purchase under the terms of an act signed last week by Governor Fitzgerald.

The bill is primarily intended to permit the city of Battle Creek to build a $220,000 overhead parking structure, for which it sought a PWA grant. PWA authorities doubted the legality of revenue bonds to finance the city's share of the cost, and the present act is designed to place automobile parking on the same status with regard to revenue bonds as sewage disposal or water supply.

The proposed structure, providing space for 331 cars, would be 675 ft. long by 99 ft. wide. It would be of steel girder construction with a 6-in. reinforced concrete deck. George M. Foster of Lansing is the consulting engineer on the project.

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Value of Secondary Road Stressed at Conference

National Asphalt Conference hears of changing conceptions of road-surface types and wider use of equipment

More than a thousand technologists, engineers and contractors in attendance at the Twelfth National Asphalt Conference of the Asphalt Institute at Los Angeles last week reviewed the past, discussed the present, and contemplated the future developments and uses of bituminous materials. The trend of development of construction equipment used in roadbuilding also received much attention, one day's session being entirely devoted to this subject.

While "Twenty Years of Progress" was the theme of the convention, a review of past developments naturally turned into a critical analysis of present practices and a glimpse into the future. As the session progressed, the outstanding part played by equipment in bituminous highway development became more and more apparent. There was no doubt in the minds of those present but that the mechanization of processes will continue, probably along lines now unforeseen. Continuity of operation, for example, is looked for in place of present batch or intermittent construction operations.

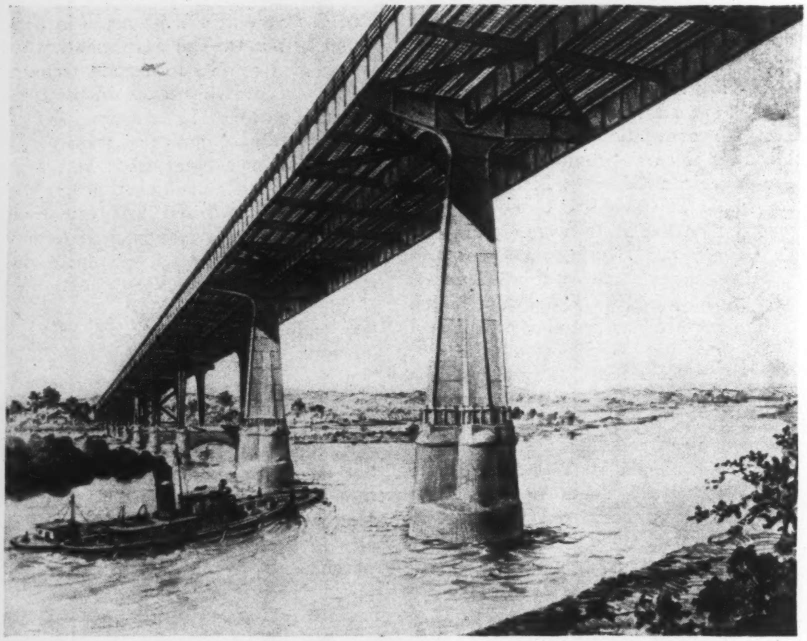
Another impression created by the convention is the need for changing our conception of road types. Traffic requirements in the past have been associated with low, medium, and high type roads. Sprung weight, balloon tires, and better subgrades, drainage and fills have made type classifications obsolete. Papers and discussions pointed out that density of traffic is no longer the prime consideration in design of the highway surface. Wearing surfaces formerly thought of as low or intermediate types are successfully carrying traffic of a density that not so long ago was regarded as demanding a high type.

Several speakers pleaded for closer cooperation between manufacturers—both of materials and equipment—the engineer, and the contractor or user in looking to the desired end product—the finished road. Only by such cooperation can the desires and needs of the engineer, the availability and possibilities of materials and equipment, and the economy and practicability of processes be learned.

There were 25 papers presented on a variety of subjects, including highway economics and design progress, construction methods, and development of equipment and materials.

J. E. Pennybacker, managing director of the Asphalt Institute, declared that we have the wrong economic conception of highways. Our road system should not be looked upon as a medium of long-distance transportation, but as a local transportation facility, for only a very small part of highway traffic is long-distance travel. This misconception, he stated, has resulted in an overbuilding of through routes to the neglect of local roads. He scoffed at the idea of transcontinental super toll roads, saying they would never even begin to pay out. L. I. Hewes, U. S. Bureau of Public Roads, stated that the big need at the moment was for boulevard access to and from centers of big cities, and not by-passes around them; the preponderance of traffic in metropolitan districts is into and out of the congested areas, he said.

J. S. Helm, president of the Institute, predicted a wider use of asphalt in the future, not only in roads and airports, but in revetments, soil erosion prevention, and canal lining, possibly in combination with cotton fabric. Earl Wythecombe, California Division of Highways, and Bernard Gray, chief engineer for the Institute, pointed out that the old method of constructing uniform thickness pavement over an indiscriminate collection of soils has given way to a more scientific treatment of the foundation problem. They also



ONE-LEG BENTS TO SUPPORT CONNECTICUT BRIDGE

CONSTRUCTION began in January on what will be one of the notable bridges of the year. Designed by the Connecticut state highway department as part of the extension of the Merritt Parkway to a connection with the Boston Post Road near Milford, this plate girder structure will cross the Housatonic River in a cantilever span layout supported on one-leg or T-bents resting on single cylindrical piers 28 ft. in diameter. This type of design for the river piers makes them narrow enough to permit a 150-ft. ship channel on a 54-deg. skew to pass through the 224-ft. opening. The taller of the T-bents is 79 ft. high. Construction is cellular, of a type similar to suspension bridge tower legs. Anchor arm spans are 160 ft. and the approaches consist of 160-ft. and 128-ft. spans in continuous girder layouts. The total length of the steel bridge is 1,084 ft., and 4,000 tons of steel are required.

The three lines of plate girders, approximately 100 in. deep, will support 95,000 sq. ft. of open mesh steel deck in two 26-ft. divided roadways.

The A. I. Savin Construction Co., East Hartford, Conn., has begun work on its $450,000 substructure contract, which includes steel-pile-supported approach piers and the river piers which are carried to rock. Steel erection by the American Bridge Co. under a $570,000 contract will begin Nov. 1.

said that the sole purpose of stabilization is to reduce the thickness of the paving necessary to support the traffic load without failure.

N. F. McCoy, U. S. Bureau of Public Roads, and Prevost Hubbard, chemical engineer for the institute, discussed the research in asphalt materials that has made possible wider use of local aggregates and soils. Practical and economical pretreatment methods can be expected to permit use of minerals now considered unsuitable.

Discussions of equipment development were most interesting and complete, and were even startling in the revelation of the rapid advance that has been made in the past few years. All of the speakers on this subject agreed that mechanization of methods and improvements and developments in equipment will continue without interruption.

W. E. Christison, Los Angeles Flood Control District, described the interesting use of asphalt bank paving for prevention of scour in flood channels. The district started to experiment with this type of protection in 1936. The present design consists of a 4-in. bituminous mat, rolled to 3-in. thickness over a 2:1 slope face, reinforced with wire mesh fastened to boiler tube stakes driven on 5x5-ft. grids. The mix is 7.8 per cent (by weight) of Grade D asphalt, 40-50 penetration, 68.6 per cent sand, 18.8 per cent ¼-in. stone and 4.8 per cent dust. This gives a flexible mat that stood up under the 1938 flood, even in places where the underlying bank was washed out by overtopping.

Thos. E. Stanton, Jr., California Division of Highways, told of results on an experimental section of road built in 1937 in Kern County to test the possibilities of softer asphalts than were in use at the time. Mixes employing asphalts varying from 55 to 200 penetration were placed in the test section, and after eighteen months of service, the harder asphalts show no superiority of quality over the softer grades.

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Name on Letterhead Voids Low Bid

Because the letterhead of Halsema Bros., Inc., bore the name of B. H. Halsema, city building inspector of Miami, Fla., as president, the firm's low bid on construction of a building for the city was thrown out. Halsema said he had severed his connection with the firm two years ago, but the city commission ruled that his name on the letterhead made the company ineligible to bid. The contract was awarded to the next lowest bidder.

Markham Endorses Florida Canal

Endorsement of the proposed Florida ship canal as "a grand piece of business for the expenditure of public money" was expressed last week by Major General Markham, former Chief of Engineers, testifying at hearings on a bill to authorize completion of the canal. Markham said he believed the canal could be built in six years for about $160,000,000, including a $20,000,000 profit to the contractors. He said that his conservatism in previously recommending construction at a cost of $197,000,000 now seemed "ridiculous." "If I were making the recommendation again, I would recommend it unequivocably as a grand piece of business for the expenditure of public money," he said.

The committee also heard Sidney Page consulting geologist, formerly of the U. S. Geological Survey, testify that the canal would have "no appreciable effect" on the underground water supply of Florida. Page characterized the state, with an average rainfall of 52 in. annually, as "one of the wettest spots in the country."

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Bids to Be Asked On South Penn Tunnel

Bids for excavating the first two of eight tunnels of the 160-mile Pittsburgh-Harrisburg highway in Pennsylvania will be received soon, the Pennsylvania Turnpike Commission, which is building the highway, has announced. Bids will be asked for work on the Sidelong Hill Tunnel and the Laurel Hill Tunnel.

The commission is using seven of the nine abandoned tunnels of the old South Penn Railroad, as well as part of the railroad roadbed for its right of way. An eighth tunnel will be a new 1,763-ft. bore at Clear Ridge. Two of the original railroad tunnels will be abandoned and open cuts on higher elevations will be substituted.

The first two tunnel jobs, which do not involve lining or ventilating of the tunnels, include 110,000 cu.yd. of excavation for Laurel Hill and 140,000 for Sideling Hill. The Sideling Hill Tunnel will be 6,840 ft. long when completed, and about 3,400 ft. of this was driven by the railroad builders fifty years ago, though this section will have to be widened. About 900 ft. of the 4,592 ft. of Laurel Hill Tunnel was driven for the railroad.

All the tunnels for the highway project, totalling about 7 miles in length, will be wide enough to permit a freeway at least 20 ft. wide and 14 ft. high.

Planning Body Is Proposed

Permanent board to replace National Resources Committee provided in Byrnes bill amendment

Establishment of the National Resources Committee on a permanent basis is provided for in a proposed amendment to the Byrnes bill, setting up a Department of Public Works, which is now before Congress. The amendment, introduced by Senator Hayden, would establish a National Resources Board composed of the secretaries of the treasury, war, interior, agriculture, commerce, labor, and public works and three other members to be appointed by the President with the consent of the Senate.

The proposed board would have advisory powers only and would not be authorized to carry out any construction. It would make studies in cooperation with other federal and state agencies and submit annually to the President a program for the conservation, development and utilization of the natural resources of the country as well as for the promotion of navigation and the control of floods. Such programs would include a priority list of projects. Projects so proposed would be submitted by the President to Congress and authorized by that body at its discretion.

The present National Resources Committee, the successor to a board organized by PWA under the 1933 act, is appointed annually by the President.

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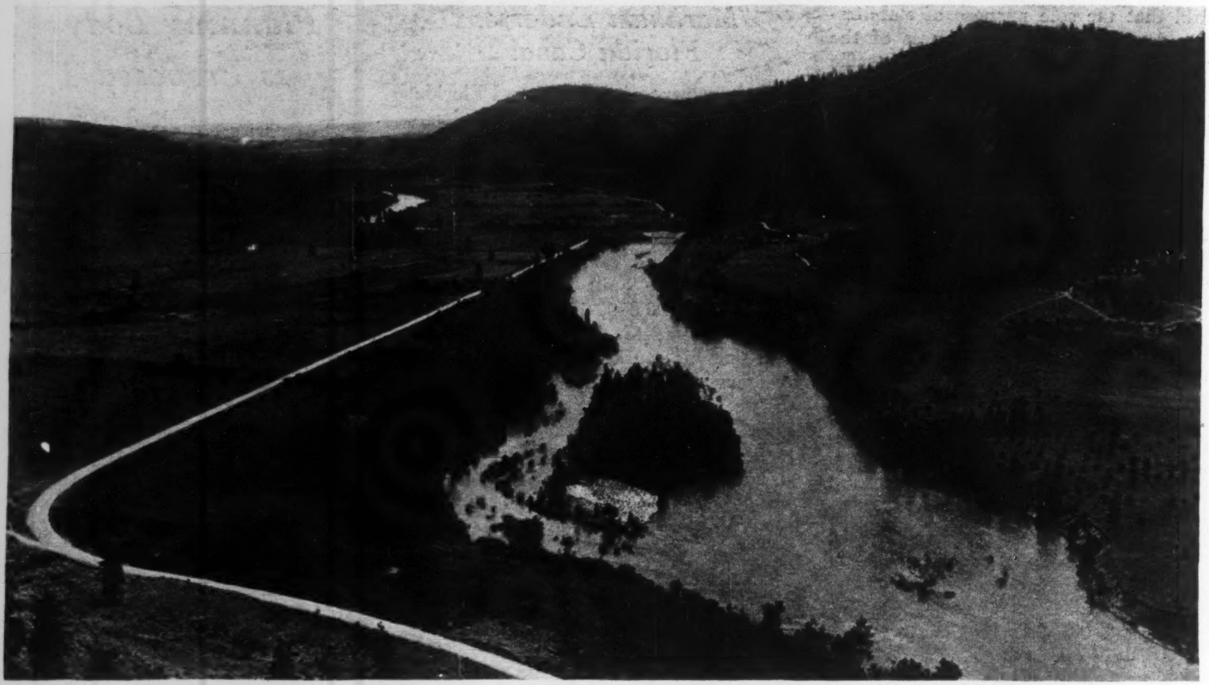
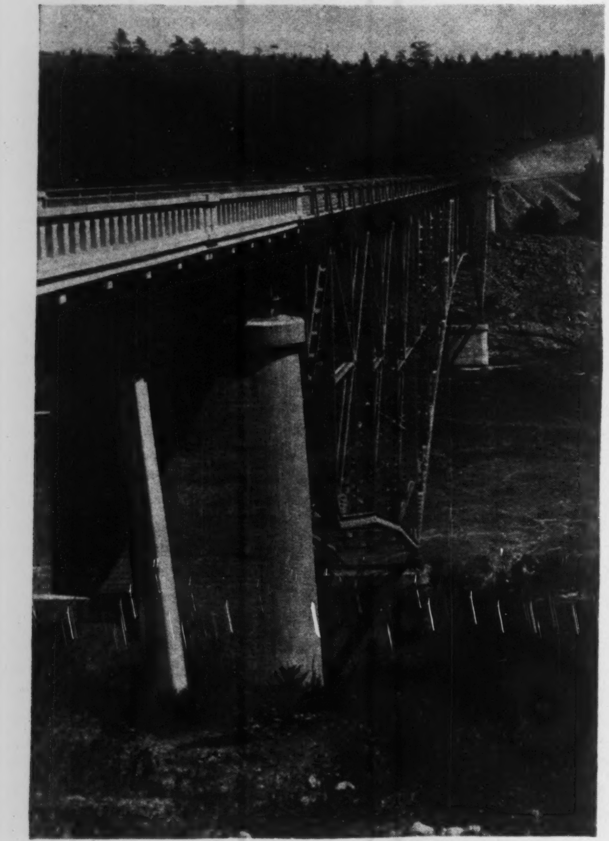
Fast Concrete Pouring At Grand Coulee

Placing of concrete at Grand Coulee Dam, which was resumed the middle of last month after about a month's shutdown, is proceeding at such a rate that Consolidated Builders, Inc., the present contractors, expect to place about 3,000,000 cu.yd. this year, breaking the record of 2,755,000 set in 1937 by Mason-Walsh-Atkinson-Kier, contractors on the foundation dam.

Loaded concrete buckets are now being dropped at a speed of 400 ft. per min. as compared to 300 ft. per min. last year, while empty buckets are raised at 750 ft. per min., as compared to the previous 600 ft. The speed of the diesel electric locomotives on the construction deck has been increased more than a mile an hour, and the capacity of the concrete mixing plant has also been increased.



FAR FROM GRAND COULEE, yet near enough to feel its influence is this portion of the Spokane River Valley, which will be inundated when Grand Coulee Reservoir reaches its full size. In the 130 sq. mi. that will be covered in the Columbia, Spokane and Kettle river valleys are 135 mi. of such roads as the one shown. These, along with 36 mi. of railroad, must be relocated during reservoir site clearing operations, which are beginning this spring.



Bureau of Reclamation Photos

Site Clearing to Begin For Coulee Reservior

As spring approaches, preparations for clearing the reservoir site behind Grand Coulee Dam are getting underway Since January 1937, the U. S. Bureau of Reclamation has been making surveys which are the basis for conferences between the Bureau, the Washington State Highway Commission and the Great Northern Railroad regarding plans to relocate towns, railroads, highways and bridges that will be affected by the rising waters.

Water will be backed up the Columbia River 151 miles over an area of 130 sq. mi., in which there is a resident population of 3,000. The reservoir also will affect levels 34 mi. up the Spokane River and 8 mi. up the Kettle. By the end of 1938, almost $2,000,000 had been spent for right-of-way.

ONE OF FOURTEEN highway bridges to be inundated by the Grand Coulee reservoir, this steel arch, located below Kettle Falls, will be replaced by a combination rail and highway bridge at a higher level.

New Knowledge of Concrete

Annual convention of American Concrete Institute in New York brings out new research studies of bond and bleeding

In a three-day program with feature sessions devoted to concrete roads and architectural concrete, the American Concrete Institute during its 35th annual convention in New York City, March 1–3, paraded modern knowledge in this research-minded field before some 475 engineers and contractors. Among the technical subjects covered, bleeding of concrete, bond strength and structural design of pavements were notable.

At the annual banquet the Henry C. Turner medal for outstanding service was awarded to P. H. Bates, National Bureau of Standards; the Leonard C. Wason Medal to Wilbur M. Wilson and Ralph W. Kluge of the University of Illinois for their paper "Tests of Rigid Frame Bridges"; and the Leonard C. Wason Research Medal to Thomas E. Stanton, Jr. and Lester C. Meder of the California highway department for their report of a study of cement in seawater and alkali soils. Speakers at the banquet were Conde B. McCullough, assistant state highway engineer of Oregon, and Willard T. Chevalier, vice-president, McGraw-Hill Publishing Co. John P. Hogan, chief engineer, New York World's Fair, acted as toastmaster. The new president of the American Concrete Institute is Prof. F. E. Richart, of the University of Illinois, who succeeds John J. Earley of Washington, D. C.

Making better concrete

Several papers were devoted to the very practical matter of securing better concrete in the field. Under the title "Ordinary Concrete," Miles N. Clair, vice-president, Thompson & Lichter Co., Boston, gave a detailed resume of practices which are elementary to all students of good concrete, but too seldom followed by contractors on small jobs.

As another aid to the small job, R. B. Young, Hydro-Electric Power Commission of Ontario, outlined a set of instructions he uses for his superintendents in the field. Such requirements as a minimum 5½-bag mix, to assure durability; a rough but definite correction factor for moisture in aggregates; extreme care in selection of sand and less in the case of coarse aggregates; prohibition of anti-freeze admixtures; and maintaining concrete at warm temperature instead of utilizing excessive heating of the materials are among the important items listed. George L. Lucas, engineer of inspection, Port of New York Authority, in his paper enlarged upon good field practices and urged less congestion of reinforcing, the use of plastic instead of "easy-to-pour" concrete and less haste in construction.

A fourth paper bearing on better concrete described research on paint for concrete surfaces and was presented by Paul O. Blackmore, chief chemist, Ault & Wiborg Corp., Cincinnati. In cooperation with the Portland Cement Association, 1,400 blocks, 8 x 8 x 1½ in. in size, were cast, painted with a dozen primer materials and as many finish coats and exposed to the weather. The object was to develop a paint that would last from three to five years under industrial atmospheric conditions. The two prime coats that resisted alkali and moisture best were shown to be a long oil (30 gal. per 100 lb. of vehicle) and a special phenolic resin base paint, while a straight linseed oil was found to be the best finishing material. Paints modified with resins seemed to lack the necessary flexibility of surface for long durability.

Better concrete roads

Out of a maintenance and repair program for Oregon State highway bridges extending back for twenty years, the department has developed a specification and program for concrete manufacture that it is believed will go far toward eliminating many of the troubles experienced with cracking and checking of surfaces on the earlier bridges. This work was described by C. B. McCullough, assistant state highway engineer. Mr. McCullough pointed out that two types of cracks had been observed, those which occur in rather large patterns and attain a width of as much as ¼ in. or more, and those which appear as fine hair cracks. Both types of cracks are most prevalent on exposed surfaces such as handrails and curbs.

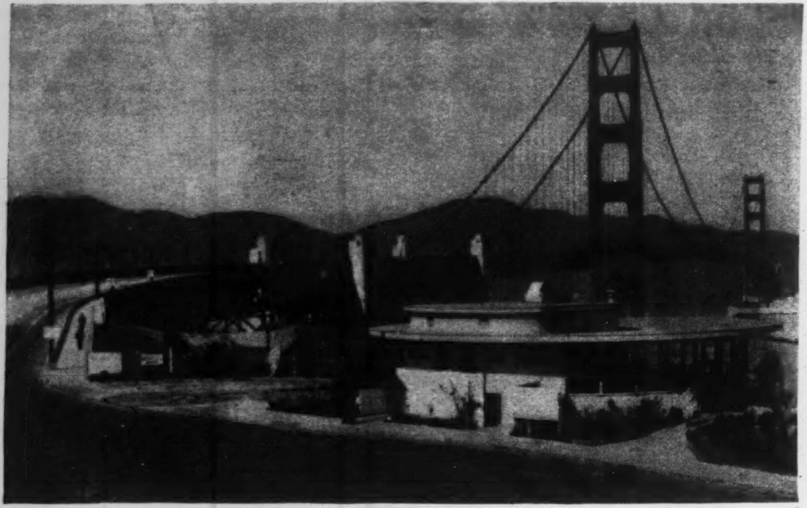
It has been concluded that the wider cracks are caused by the presence of too much free lime in the cement, which normal test procedures do not reveal. Accordingly, Oregon has adopted the autoclave test for all of its cement purchases. The fine hair cracks have been associated with poor aggregate that will not stand the sodium sulphate test. Accordingly, this test is now specified for both large and small aggregates. Furthermore, since an excess of tricalcium aluminate in the cement was invariably associated with the fine cracking, specifications now require the use of a moderate heat cement in which the tricalcium aluminate is limited to 8 per cent. In addition to the specifications, repair patching is now under a revised procedure in which after the patch is placed it is treated with a 50-50 mixture of hot linseed oil and turpentine and then covered with a lead and oil paint.

One of the outstanding papers at the meeting was presented by E. F. Kelley, chief, division of tests, U. S. Bureau of Public Roads, in which he brought together the scattered but voluminous results of research and deduced from them a rational procedure for the structural design of pavement slabs. In brief the procedure is based upon the Westergaard wheel load analysis, and Mr. Kelley indicated that an 8,000 lb. wheel load for high pressure tires and a 9,000 lb. wheel load for dual balloon tires produce stresses that cannot safely be exceeded. Temperature warping of slabs was shown to have almost as much effect on stresses as loads. The conclusion is reached that steel reinforcing must be used to reduce cracking. Conclusions from Mr. Kelley's paper will be published in a following issue.

A paper by F. H. Jackson, senior engineer of tests, Bureau of Public Roads, on curing of concrete pavements, brought out the only wholly new information presented in the several papers. Discarding field tests as involving so many factors beyond control as to vitiate comparative determinations, Mr. Jackson stated that the bureau had developed apparatus for laboratory tests in which temperature and moisture control and other influences on curing can be precisely regulated. Three methods of curing were used on small test slabs: first, water curing by wet blankets, second, curing by water tight coatings of bitumen or water glass and, third, curing by salts such as calcium or sodium chloride. The general indication is that a 24-hr. advance water curing by wetted burlap blankets increases the efficiency of the bitumen and chloride treatments.

Concrete pavement durability was discussed in three papers describing observations in New York, Pennsylvania and Connecticut. The long series of laboratory and test road studies on aggregates, particularly sand, and on cements in New York were outlined by Elmer Lawton, deputy commissioner of highways. Particularly impressive were the numerous examples described and illustrated of greatly reduced surface scaling due to the use of blended cement—a mixture of natural and portland cements in about the proportions of one to six.

Pennsylvania, stated S. W. Marshall, former state highway engineer, is conducting extensive condition surveys of concrete roads.



RESTAURANT IS TOLL BRIDGE ADJUNCT

In addition to providing transportation to the north, the Golden Gate Bridge and Highway District is providing San Franciscans with a unique eating place. Beside the toll plaza of the Golden Gate Bridge overlooking the entrance to San Francisco Bay is a circular restaurant with large plate glass windows providing a view of the bridge, the bay, and the surrounding country.

The restaurant was built by the district in connection with a large parking area beside the toll plaza, and is leased to an operating firm.

The building itself is on filled ground, and the footings were therefore designed as a unit to prevent cracking even if the building is thrown out of plumb by settlement. This was accomplished by making the peripheral wall and footing a reinforced concrete girder, tied by means of another concrete girder along one diameter. Roof joists are framed radially from a central column to the outside wall.

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sions are available. Connecticut, said E. C. Welden, deputy state highway commissioner, had experienced no notable lack of durability in concrete pavements probably because good sand and trap rock aggregates are widely available.

Bond of concrete

Bond resistance between concrete and steel reinforcing is attracting the attention of research men after being neglected for many years. New methods of placing, new reinforcing bars and the general tendency toward a re-examination of design practices are among the reasons why bond has become a modern research problem of note. A research study of pull-out tests, involving 1-in. round and square bars cast in concrete prisms, was described by C. A. Menzel of the Portland Cement Association in a paper which indicated that bond is increased by sandblasting the rods, that the resistance of deformed bars has more relation to concrete compressive strength than does that of plain bars, that transverse lugs are more efficient on deformed bars than longitudinal lugs, that slip is greatly increased as steel stresses are raised, that modern bars are smoother than those of 20 years ago, and that bond is better with dry than with wet mixes. A. E. Lindau, Chicago, suggested that the tests indicate a need for a new evaluation of the various types of deformed bars. Other discussors pointed out that pull-out tests are not directly indicative of bond in a beam, but Mr. Menzel replied that they are more severe and therefore the results of pull-out tests are on the safe side. Prof. M. O. Withey, University of Wisconsin, suggested the need for bond study under sustained loading.

Bleeding of concrete

One of the most troublesome and important problems of concrete making is bleeding, variously known as water gain, weeping, etc. In one of the best papers of the convention, T. C. Powers of the Portland Cement Association presented results of a current research study which gives the first insight into the physical action involved in bleeding. According to Mr. Powers, bleeding simply is a case of sedimentation in which the large and small particles do not separate, as in a turbidimeter, for example. The resulting settlement, however, produces compaction zones that increase in density toward the bottom of the mass.

Bleeding depends upon the amount of water present and upon the available surface area of the materials. It may thus be reduced by increasing this surface area, which may be done most advantageously by adding fine material. Cement and silica gels were mentioned. Both Mr. Powers and several discussors emphasized the fact that the ideal mix from a bleeding standpoint does not necessarily make a good concrete. For one thing, volume change difficulties would no doubt be present with such a mix.

Concrete structures

Two papers concerned with concrete structures described the Navy's experimental model basin at Carderock, Md., near Washington, D. C., and the use of expansion hinges in continuous girder bridges in California. The model basin is one of the most notable reinforced concrete structures in this country. Conceived by Rear Admiral Ben C. Moreell, chief, Bureau of Yards and Docks, and designed under his direction, it was described by Commander Hugo C. Fischer. The model basin building is a windowless three-hinged arch roof structure of 110-ft. span, 24-ft. rise, and nearly one-quarter mile long, built with Mesnager semi-articulated hinges. The roof is 8 in. thick at the crown and 12 in. at the abutments and covers the concrete channels in which the model boat testing is carried on.

The layout, in addition, includes three-story rigid frame laboratory, office and shop buildings in which the walls are faced with precast exposed aggregate panels made in water absorbent molds and utilized as the exterior forms. The interior trim in these buildings is in the form of plastic mosaics produced by John J. Earley. The project, which will be completed this summer, is being built by the Turner Construction Co.

California has used intermediate hinges in continuous beam spans to simplify the analysis and to secure improved structural action. A single hinge is used at about the quarter point of every third or fourth span. The hinges and the data on the elastic properties of beams equipped with them were described in a paper by D. H. Pletta, Virginia Polytechnic Institute, and Leonard C. Hollister, designing engineer, bridge department, California division of highways.

Architectural concrete

An evening session was devoted to a joint meeting of the New York chapter of the American Institute of Architects and the A.C.I., at which Ely Jacques Kahn, New York architect, and Leopold Arnaud, dean of architecture, Columbia University, told what the architect wanted in concrete and R. W. Carlson, Massachusetts Institute of

Technology, A. J. Boase, Portland Cement Association, C. G. Walker, Cast Stone Institute, and John J. Earley described what can be done and what some of the problems are.

The architects indicated a desire for warmer textures and more durable colors in concrete and particularly emphasized the disadvantage of shrinkage and expansion. Prof. Carlson devoted considerable attention in his paper to the subject of shrinkage and discussed the tests now under way at M.I.T. in which the healing of cracks has been promoted by the addition of puzzolanic silica to the mix which provides opportunity for continual hydration and combination with the free lime. In this connection, Professor Carlson pointed out that too fine a cement may be detrimental if all of it hydrates immediately. A better balance would be that some of the grains would hydrate slowly and thus be available to take up subsequent moisture. Mr. Boase described weakened plane joints as an aid in controlling concrete expansion and also mentioned the research program involving the use of natural and artificial colored aggregate for thin surfaces on concrete. Mr. Walker pointed out that cast stone is a much more efficient material today than it was ten years ago and that it is developing a character of its own rather than trying to imitate natural stone. Mr. Earley, one of the leaders in making concrete architecture a fact with his use of polychrome aggregates and water absorbent casting molds, summed the session up by pointing out that concrete will perform best economically and esthetically when the architectural requirements are of the highest.

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Housing Authority Powers Increased in Connecticut

The Connecticut state legislature has authorized local housing authorities to issue revenue bonds to finance their projects. Absence of this authorization, customary in most state housing acts, from the Connecticut housing act had roused fears of delay in the state housing program. The bill provides that bonds not sold to the federal government may be sold privately.

Authorities are prohibited under the new measure from operating for profit or as a source of municipal revenue. The authorization previously given to local authorities to demolish buildings on private property without waiting for completion of condemnation proceedings is repealed, but the act validates formation of existing authorities and their past acts even though there may have been a defect or irregularity in such proceedings.

New York to Create Parks By Refuse Dumping

New York City has adopted a plan, developed jointly by the Park and Sanitation Commissioners, to extend the area of Sound View Park in the Bronx by transferring dumping operations from Rikers Island, where about 35 per cent of Manhattan's refuse is now being dumped, to an area of marsh and meadowland which the city plans to acquire at the edge of the existing park. Under the plan, all dumping at Rikers Island will be halted, and the sanitation commission will build a bulkhead around the Sound View marsh area and fill in behind the bulkhead.

Writing to Sanitation Commissioner Carey, Park Commissioner Moses said, "Your department can dump in this area the same quantity you have been bringing to Rikers Island and can complete the filling of the proposed Sound View Park in two years. . . . We can open up recreational facilities in the northern part of Sound View Park to public use from time to time as your present land dumping proceeds and finish up the entire park within one year after dumping stops."

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Arkansas Contractors To Be Licensed

The Arkansas legislature has passed a bill requiring that general contractors on projects costing more than $10,000 be licensed by a state licensing board for general contractors, set up in the bill. Applicants for the license will be charged a $50 fee at the time application is made and may be required to pay an annual fee of $50 thereafter to defray expenses of the board.

Governor Bailey has appointed the following to the board, for terms ranging from five to one year: Haskell Dickinson, S. E. Evans, Earl Bird, Sam Dixon, and Donald F. Jones.

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Terzaghi to Consult On Building Settlement

Karl Terzaghi has been retained as consultant by the directors of the Charity Hospital in New Orleans to study the settlement which has occurred in the new hospital building. Terzaghi's appointment has been approved by PWA Administrator Ickes, PWA having aided in the financing of the building.

Reports of uneven settlement of the hospital foundations amounting to as much as 9 in. led Ickes last month to request the hospital board to employ a consultant to determine whether the building is safe.

WASHINGTON HIGHLIGHTS

Special reports by Paul Wooton

COMBINATION of relief and public works activities in a single government unit was opposed by Secretary of the Interior Ickes, testifying before the Senate Committee which is considering the Byrnes bill to combine PWA and WPA with other agencies in a public works department; the secretary pointed to the difference in objectives and methods of handling between the two types of activities. Ickes, however, expressed his approval of a permanent public works agency on the ground that unemployment is a permanent problem and demands a permanent agency to deal with it. He pointed out that should an economic decline be noted in one section of the country, a functioning public works department could readily come to its assistance with prepared projects that would quickly relieve unemployment.

FUNDS for construction of Gilbertsville and Watts Bar dams by the Tennessee Valley Authority were approved by the House of Representatives when it voted last week, 184 to 174, to accept the conference version of the bill. The House had stricken the appropriation out of the independent offices bill but it was restored by the Senate and kept in the bill by the conference committee.

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Pollution Control Is Proposed

(Continued from page 1)

division would classify navigable waters into sanitary districts and put each district under the control of a local board of five to 21 members. Standards of water purity would be established in each district and regulations issued governing the discharge of waste. If violations of the regulations occurred, the Clark bill would permit injunction actions to be brought in the federal courts.

Provision for federal grants to aid in the construction of pollution abatement projects is liberalized in the Clark bill to permit grants up to 50 per cent of the cost. The Barkley bill would limit federal aid to a maximum of 33-1/3 per cent.

The Barkley bill has already been favorably reported by the Senate Committee on Commerce, and the Clark bill will be considered in the Senate as an amendment to the Barkley bill.

OBITUARY

Daniel C. Rounseville, retired assistant chief engineer of the Chicago & Northwestern Ry., died Feb. 28 in Oak Park, Ill., at the age of 82. Before his retirement twelve years ago, Rounseville had been with the railroad more than 50 years, starting on location survey work for the Milwaukee, Lake Shore & Western, one of the lines which subsequently became part of the Chicago & Northwestern.

Arthur H. Miller, superintendent of water supply of Sheboygan, Wis., died there Mar. 2 at the age of 56. Miller graduated from the University of Wisconsin in 1905 in mechanical engineering and taught there until 1912. He was then engaged in the metal working industry at Sheboygan until 1931 when he became superintendent.

Harry L. Sterling, an engineer in the Philadelphia bureau of highways, died in West Philadelphia Mar. 1 at the age of 70. Sterling, a graduate of the Case School of Applied Science, was associated for several years with his father in the paving business in Cleveland and later practiced as a consultant in New York City.

William G. Smith, 87, retired civil engineer of Waterbury, Conn., died there Feb. 19. Smith was active in the latter part of the last century in railroad and street railway construction in New England. Recently he had been a member of the state board of civil engineers for the inspection of dams and reservoirs. He was a charter member and past president of the Connecticut Society of Civil Engineers.

Hawley S. McCall, 54, head of the McCall Engineering Co. of Waco, Tex., died there Feb. 18. A graduate of Texas A&M College in 1903, McCall did his first engineering work for the H. & C. T. R. R. and shortly thereafter founded the McCall-Moore Engineering Co. of Waco.

James L. Dailey, contracting manager in the Missouri and Kansas territories for the Pittsburgh-Des Moines Steel Co., died in Des Moines Feb. 25 at the age of 47. Dailey graduated in civil engineering from the University of Michigan in 1914 and joined Pittsburgh-Des Moines that same year.

Henry S. Kerbaugh, a contractor formerly active on railway and other work throughout the eastern states, died in Keene, N. H., Mar. 1, aged 78. About the turn of the century, Kerbaugh had important contracts constructing lines for the Pennsylvania R. R. and the Baltimore & Ohio. In 1907 he became active in New York State, and during the period between 1908 and 1912 he had $80,000,000 worth of work under contract, including highway and Barge Canal work and contracts on the Catskill Aqueduct and Kensico Dam of the New York City water supply system.

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First State Signs Ohio Valley Compact

Indiana became the first state formally to ratify the Ohio Valley stream pollution compact last week. The compact, which has been drawn up by a commission representing Ohio, Kentucky, Tennessee, New York, West Virginia, Virginia, Illinois and Indiana, is now before the state legislatures, with administration support, in three states and is under consideration in two states.

The compact will obligate states ratifying it to see that all sewage flowing into the Ohio system is so treated within a reasonable time as to remove settleable solids. A commission is set up under the compact which will recommend appropriate legislation to the states and which may order municipalities to treat their sewage.

San Francisco Traffic Job Awaits Legal Approval

Completion of the contract between San Francisco and C. H. Purcell, under which he would serve as consulting traffic engineer for that city, (*ENR* Feb. 16, 1939, p. 199) has been held up pending a legal decision on the validity of such a contract. After opposition arose in political circles to his appointment, Purcell asked the city to clear up the question of whether such a contract was subject to attack on the grounds that it exceeded authority granted by the city charter. He has not yet left his position as state highway engineer.

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Los Angeles Rejects Dennis Appointment

The nomination of Harry W. Dennis as a member of the Los Angeles board of public works has been rejected by a vote of the city council. Dennis retired last month from his post as chief civil engineer of the Southern California Edison Co. (*ENR*, Feb. 9, 1939, p. 7).

Mayor Bowron said he would submit Dennis' name again in July.

STORAGE BEGINS AT BARTLETT DAM

Now that the least advanced of the multiple arches of Bartlett Dam on the Verde River in Arizona has reached a height which permits storage of 25,000 acre-feet., water is being permitted to fill to that level. When the 270-ft. structure, highest of its type in the world, is completed, it will impound 200,000 acre-ft. It is being built by the Bureau of Reclamation to provide additional water for the Salt River Valley near Phoenix.

Tractor Machinery Exhibit Held at Cleveland

A wide range of new and improved tractor auxiliaries embodying much ingenuity was displayed to 600 Cletrac distributors and users at a showing held by the Cleveland Tractor Co. at its plant at Cleveland, March 3 and 4, under direction of William Abildgaard, W. E. Miles and D. A. Milligan. Many of the principal builders of tractor-driven units told about the uses of their machines.

Conspicuous in the field demonstrations were: a tractor-powered earth auger which bored a hole and set a 50-ft. pole in a few minutes (Highway Trailer Co., Edgerton, Wis.); a compressor mounted on the tractor with tank, log splitter and crosscut saw on a trailer (Davey Compressor Co., Kent, O.); a flat-digging hydraulic scraper (Baker Mfg. Co., Springfield, Ill.); a Cletrac front-end loader digging a basement in heavy clay loam; a portable crane powered by a winch attached to the tractor take-off (Boom Boiler & Welding Co., Cleveland), with frame members and boom of all-welded trianglar section; a small rock-crusher trailer (Eagle Crusher Co., Galion, O.); and an overhead shovel loading at the front and discharging at the rear after swinging the load over the top of the tractor (Maine Steel, Inc., South Portland, Me.)

Construction tools

Construction tools for tractor use shown in the exhibition also included scrapers, winches, rippers and trucks. Among them were several large Dig-N-Carry scrapers fitted with indicating dial to show depth of cut or fill (Heil Co., Milwaukee); a 33-cu.-ft. rotary scraper for hard digging and a solid-body dump wagon (Euclid Road Machinery Co., Euclid, O.); a heavy ripper (Cleveland Grader Co.); trailbuilders and tamping rollers (Gar Wood Industries, Detroit); several types of winch, including free-spool designs for easy overhaul of the rope in logging (Pacific Car & Foundry Co., Seattle; Isaacson Iron Works, Seattle.; J. F. Britton, Erie, Pa.); and trailbuilders and rippers (Buckeye Traction Ditcher Co., Findlay, O.).

One of the features of the exhibition was the first showing of a new Cletrac machine, a light three-wheel, rubber-tired tractor.

Willard Chevalier, vice-president McGraw-Hill Publishing Co., New York, in an address at a dinner that closed the meeting, outlined the factors of the present business situation in the light of latest developments. He forecasts a year of distinctly improved business.

MEN AND JOBS

C. F. SEIFRIED who has been state highway superintendent of Wyoming since September, 1937, has been returned to his former post as office engineer of the department. Seifried has been connected with the Wyoming highway department since 1919, when he became a resident engineer. He is a member of the Wyoming board of examining engineers.

FRANK KELSO, construction superintendent for the Inland Construction Co. of Omaha, has been appointed superintendent of the Wyoming highway department, effective Mar. 1, succeeding C. F. Seifried. Kelso has been with Inland for about thirteen years, and has been active for the past eight years on highway construction in Wyoming. Formerly he was engaged on construction of some of the early hydro-electric plants in Nebraska.

FRED LAVIS has been engaged by the Venezuelan government to act in an advisory capacity to the Minister of Public Works on the preparation of plans and economic studies for the future development of land transportation in that country including railways and highways.

GEORGE D. REED of the U. S. Public Health Service has been detailed to the bureau of sanitary engineering of the Kentucky state department of health in connection with a study of pollution conditions in the Ohio river basin.

RAY MOFFITT, former district engineer for the Pennsylvania highway department, has been promoted to maintenance engineer to succeed Wayne Meyers, resigned.

ROBERT LITEHISER has returned to his post as chief engineer of the Ohio state highway department's testing laboratory after a year's leave of absence during which he was chief engineer of the Crushed Stone Association, with headquarters at Albany.

FRED SWINEFORD, acting chief engineer of the Ohio highway department's testing laboratory, has been transferred to the bureau of location and design as assistant chief engineer.

LIEUT.-COL. LEHMAN W. MILLER of the U. S. Engineers is assuming his duties this month as district engineer in the First New Orleans District. Colonel Miller, who has been stationed at Rio de Janeiro, succeeds Lieut.-Col. R. W. Crawford, who will be transferred to Washington to serve on the general staff. Miller was district engineer at Panama from 1927 to 1930. From 1930 to 1934 he first studied and then taught at the Fort Leavenworth Staff School and was then stationed in Brazil.

EVERETT C. SMITH, JR., for the past two years chief engineer for Region 2 of the WPA, has been named Pennsylvania state director of WPA. Smith was formerly connected with the U. S. Engineers.

WALTER C. SMITH, city engineer of Wheeling, W. Va., has been appointed city manager there.

A. C. EVERHAM, for the past twenty years western representative of the Raymond Concrete Pile Co. at Kansas City, and A. T. Everham, recently connected with Raymond in Los Angeles, have left that company to engage in the pile driving and foundation business with offices in Los Angeles and Kansas City.

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Landowners Protest Yadkin Dam

Seventeen landowners in North Carolina have protested to the Federal Power Commission against the issuance of a license for a 30,000-hp. hydroelectric project which the city of High Point, N. C., plans to contruct on the Yadkin River. Asserting that the project is not necessary to assure the city of an adequate power supply, the landowners point to the damage they will incur from the overflowing of their land by the proposed reservoir.

The landowners also charge that the river bed at the proposed dam site forms a "highly questionable foundation" and "that if the dam is built as designed, there is cause to expect that the damage due to undermining below the dam might cause the entire structure to fail or become so seriously weakened as to constitute a public menace." A further danger to the dam would arise, it is charged, from the fact that floods on the Yadkin are caused by West Indian hurricanes and are accompanied by high winds. It is charged that the proposed water level of the reservoir is such that the dam would be subjected to destructive action of waves.

The protest also asserts that a better dam site is available on the Dan River.

Pollution District Formed on Potomac

Formation of a Potomac Valley Conservancy District for the abatement of pollution in the watershed of the Potomac River was agreed upon Mar. 6 at a meeting of representatives of the States of Virginia, Maryland, West Virginia, Pennsylvania, and the District of Columbia.

The meeting approved an interstate compact providing for establishment of a permanent body consisting of three representatives from each jurisdiction together with three to be appointed by the President. A budget of $12,000 was approved for the first year of operation, with provisions for increasing this up to $30,000 annually later.

The compact will have to be ratified by the states concerned.

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Corrosion Studies To Be Coordinated

An organization to serve as a clearing house and coordinating agency for information on work in progress in the field of corrosion and corrosion prevention was formed last month by representatives from a number of technical societies and other organizations at a meeting at the Philadelphia headquarters of the American Society for Testing Materials. Known as the American Coordinating Committee on Corrosion, the new body is devoting its first attention to compiling a list of the names and addresses of those working in the field of corrosion in this country as well as information on their special interests and current programs of study.

MEETINGS

NATIONAL SOCIETIES

AMERICAN RAILWAY ENGINEERING ASSOCIATION, annual meeting, Palmer House, Chicago, March 14-16.

NATIONAL RIVERS AND HARBORS CONGRESS, annual convention, Mayflower Hotel, Washington, D. C., Mar. 23-24.

REGIONAL AND LOCAL

AMERICAN WATER WORKS ASSOCIATION, section meetings: New York, Sagamore Hotel, Rochester, Mar. 30-31; Kentucky - Tennessee, Peabody Hotel, Memphis, Apr. 10-12; Canadian section, Royal York Hotel, Toronto, Apr. 12–14; Montana, Park Hotel, Great Falls, Apr. 14-15; Florida, Alcazar Hotel, Miami, May 4-6.

INDIANA STATE PLANNING BOARD, annual conference, Indiana University, Bloomington, Mar. 15-16.

ENGINEERING SOCIETY OF WISCONSIN, annual meeting, Pfister Hotel, Milwaukee, Mar. 15-17.

AMERICAN SOCIETY OF CIVIL ENGINEERS, Mid-South Section, spring meeting, State College, Miss., Mar. 17.

CONNECTICUT SOCIETY OF CIVIL ENGINEERS, annual meeting, Strathcona Hall, New Haven, March 21-22

NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION, annual meeting, Haddon Hall, Atlantic City, Mar. 22-24.

GREATER NEW YORK SAFETY COUNCIL, annual safety convention, Hotel Pennsylvania, New York, Mar. 27–29.

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION, annual conference, Olympic Hotel, Seattle, Apr. 27-29.

AMERICAN SOCIETY OF CIVIL ENGINEERS, Texas section, semi-annual meeting, Plaza Hotel, Corpus Christi, Apr. 28-29.

EASTERN PHOTOELASTICITY CONFERENCE, Cornell University, Ithaca, N. Y. May 13.

CONTRACTS AND CAPITAL

ENGINEERING construction awards for the week, $36,575,000, are at their lowest of the year, are 54 per cent below the corresponding 1938 week's total, and are 57 per cent below the high volume of last week.

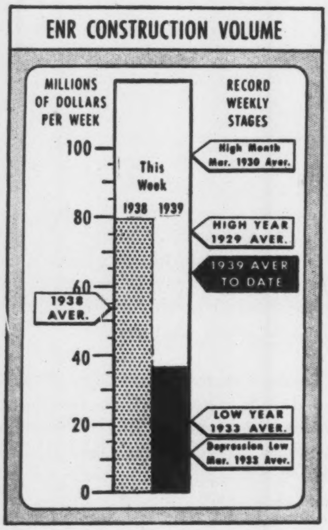
Construction volume for 1939 to date totals $637,716,000, a gain of 23 per cent over the $517,643,000 reported for the initial 10-week period in 1938.

Public awards for the current week are 21 per cent higher than for the week a year ago, but 56 per cent below last week's total. Private construction is 84 and 60 per cent lower, respectively, than last year and last week.

In the classified construction groups, sewerage, bridges, public buildings, and streets and roads gain over their respective volumes of a year ago. Sewerage is the only group to report a higher total than for a week ago.

New capital for construction purposes for the week totals $36,229,000, a decrease of 42 per cent from the $62,069,000 reported for the corresponding week last year. The current week's total is made up of $25,474,000 in USHA loans for low-cost slum clearance projects in 17 cities, $10,305,000 in state and municipal bonds, and $450,000 in corporate security issues.

New construction financing for the year to date, $470,465,000, is 124 per cent higher than for the first ten weeks of 1938.



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CONTRACTS

(Thousands of dollars)

	Week Ending Mar. 10 1938	Week Ending Mar. 2 1939	Week Ending Mar. 9 1939
Federal	$4,006	$1,345	$3,748
State & Municipal	18,616	60,883	23,582
Total public...	$22,622	$62,228	$27,330
Total private..	56,702	23,377	9,245
TOTALS	$79,324	$85,605	$36,575

Cumulative
1939 ......(10 weeks).....$637,716
1938 ......(10 weeks).....$517,643

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1938 10 Wk.	Cumulative 1939 10 Wk.
NON-FEDERAL	$210,444	$196,965
Corporate securities	86,280	31,837
State & Mun. bonds	124,291	123,978
R.E.A. loans	.....	15,631
R.F.C. loans	2,370	45
PW.A. allotments...	—2,497	.....
U.S.H.A. loans	.....	25,474
FEDERAL	.....	$273,500
TOTAL CAPITAL.	$210,444	$470,465

FHA MORTGAGES

	Week Ending Mar. 5 1938	Week Ending Feb. 25 1939	Week Ending Mar. 4 1939
Selected for appraisal ...	$17,613	$21,425	$26,263*

Cumulative
1939 ......(9 weeks)....$177,791*
1938 ......(10 weeks)....$ 91,407

* Subject to revision.

ENR INDEX NUMBERS

Index Base		1913	1926
Construction Cost	Mar.	234.43	112.69
Building Cost	Mar.	196.46	106.20
Volume	Feb.	187	82

CONSTRUCTION REPORTS

Compiled by BUSINESS NEWS DEPARTMENT
Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, MANAGER
(Daily service also available—Write for details)

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

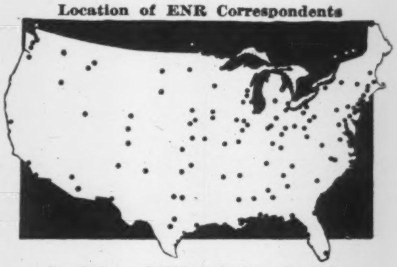
Classes of Construction
(Named in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges, Grade Cross'gs
Streets & Roads
Earthwork, Waterways
Unclassified
Materials, Equipment
Public Buildings
Commercial Buildings
Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads);
BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);
LOW BIDDERS ($500,000 projects and over);
CONTRACTS AWARDED

Location of ENR Correspondents



Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD McGraw-Hill Construction Daily

WATER SUPPLY

PROPOSED WORK

Calif., Riverside—Bd. Pub. Utilities, R. L. Boulden, supt., City Hall, authorized installation pipe lines, etc. for WW. imprvs. Over $15,000.

Colo., Montrose—Preparing plans relining, reroofing storage reservoir, constructing new intake, constructing garage and storage warehouse. B. Lowther, Colorado Bldg., Denver, engr.

Colo., Fountain—Waterworks imprvs. $16,296. WPA.

Fla., Pompano—20,000 lin. ft. c.i. watermains, various streets. Over $25,000. H. Banks, Pompano, engr.

Idaho, Midvale—Water sys. $26,365. PWA. Lawrence Porter, Caldwell, engr.

Idaho, Moscow — Election Apr. 4 to vote $65,000 bonds, 500,000 gal. steel or concrete water tank and other imprvs. H. J. Smith, City Hall, engr.

Ill., Lemont — Water treatment plant. Marr, Green & Opper, 400 N. Michigan Ave., Chicago, engrs.

Ill., Waukegan—Lake Co., bids soon, exten. water sys. from city sys. to new county hospital. $28,000. J. Anderson, 290 E. Deerpath Rd., Lake Forest, engr.

Ind., Jamestown—Town Bd., M. B. Hollingsworth, clk., WW and distr. sys., 8 in. well, deep well turbo unit, steel, tank, c.i. and copper service pipe, tapping machine, fire hydrants, gate valves, water meters, meter yokes. $20,000. O. T. Hancock, Plainfield, consult. engr. CD 9/6—ENR 9/8.

Ia., Agency — WW, new well, automatic pump, elevated water tank, pipe line and hydrant. $20,000.

Ia., Eldora—G. M. Shafer, city clk., will not construct water filtering plant complete with auxiliary equip., piping, appurtenance, etc. Proposal to construct withdrawn. **Maturity indefinite.** Currie Eng. Co., Webster City, engrs. CD 10/25—ENR 10/27.

Kan., Grinnell—Bids soon WW sys. $40,000. Bids Feb. 16 cancelled. Paulette & Wilson, Farmers Union Bldg., Salina, Kan., and 1006 Kansas Ave., Topeka, engrs CD 1/26—ENR 9/8.

Kan., Kincaid—WW imprv., dam and impounding reservoir, riprap spillway, concrete cutoff walls, distr. mains, fire hydrants, valves and boxes, etc. $45,000. Seeking WPA funds. S. J. Rever, 219½ S. Central St., Parsons, engr.

Mass., Athol—Water & Sewer Dpt., Town Hall, repairing pipe line and dam, reconstructing flood damage and constructing new dam Miller's River, sewer mains. $42,000. P. B. Kimball, chn. Planning Bd.

Mass., Brookline—Water Dpt., Town Hall, preliminary plans constructing, equipping 1 stoy, 25x50 ft. water meter testing building. $15,000. M. S. Richmond, 201 Devonshire St., Boston, engr.

Mass., Lunenburg—Bids in March, standpipe, furnishing, pump. equip. for Water Dist. Over $25,000. H. E. Bailey, 177 State St., Boston, engr.

Mass., Provincetown—Water Dpt., Town, iron removal plant, Days sand pit. $30,000. Whitman & Howard, 89 Broad St., Boston, engrs.

Mich., Port Austin—J. S. Pittwood, village clk., WW. Lake Huron source of supply.

Mont., Hot Springs—Drilled well, electric pump, mains from well to city mains. R. J. Hale, Missoula, consult. engr.

N. J., Hawthorne—Boro, removal by dismantling and re-erecting steel water reservoir at Goffle Rd. $87,481. WPA. W. Burke, foot of 5 Ave., Paterson, WPA and owner's engr.

N. J., Lodi—Boro, cradle to support 30 in. c.i. watermains. $26,077. WPA. W. Burke, foot of 5th Ave., Paterson, WPA and owner's engr.

N. Y., Albany—State Conservation Dpt., Div. Lands & Forests, State Bldg., developing water supply and extensive imprvts. to 800 acre Thacher Park, in Helderberg Mts., near here. Total est. over $100,000. **Maturity soon.**

N. Y., Elmira—Water Bd., c.i. watermains, Maple Ave. and Upper Lake St. $15,000. H. M. Beardsley, c/o owner, engr.

N. Y., Seneca Falls—Bd. Water Comrs., indefinitely postponed construction waterworks imprvs., Sects. A and B. $22,500. Norman S. Hill. Assoc., 112 E. 19 St., New York, engrs. CD 12/16.

N. Y., Syracuse — Reconstructing watermains, consisting of rerouting 20 and 30 in. c.i. mains, vinicity Renwick and Raynor Aves. in connection with proposed "Cloverleaf" underpass construction. $62,000. N. F. Pitts, city engr.

O., Fort Laramie — Village, bond election soon, water sys. incl. pumps, building, mains, connecting lines. $55,400. C. Simons, Van Wert, O., engr. CD 2/27—ENR 3/2.

O., Marblehead—U. Schmidt, clk., Council rejected bids Dec. 28, WW imprv., 100,000 gal. elevated water tank, steel tower. $120,000. CD 12/15—ENR 12/22.

O., Norwood—Drilling reserve waterworks well. $25,000. C. M. Hamon, city engr.

O., Fort Laramie—WW sys. $38,000. O. H. Slattery, mayor.

Okla., Enid—2 additional drilled wells and pump. equip. for Enid's Water Dpt. $17,000. R. D. Hopper, Enid, engr.

Okla., Ketchum—Town election Mar. 14 to vote 6% bonds for WW. $15,000. Previous election was on 4% bonds which will not sell. H. G. Buckingham, 1334 North Boston Pl., Tulsa, engr. CD 11/17—ENR 11/24.

Okla., Vinita—Additional pump equip., filter plant capacity, watermain exten. $40,000. Holway & Neuffer, 307 E. 18 St., Tulsa, engrs.

Pa., Altoona—New main feed water service line in Logan Blvd. Over $25,000. Will require large tonnage of c.i. pipe and connections. H. J. Baum, city engr., preparing plans.

Tex., Mathis—WW sys., distr. sys., steel tank and tower, pumping unit, fire hydrants, etc. $65,000. Bonds voted.

Va., Charlottesville—Water mains. $74,623. PWA.

Wash., Seattle—Bids soon c.i. watermains in Canada Dr and cross streets. $19,000. C. L. Wartelle, County-City Bldg., engr.

Wis., Beaver Dam—Authorized purchase of site for 15 in. well, 500 ft. deep, and 50,000 gal. reservoir. J. LeFluer, city engr.

Wis., Linden—Deep well, pump. sta., exten. watermain. $33,000. WPA. W. Kirchoffer, Madison, engr.

B. C., New Westminster—Water sys., Dist. L 172. Voted $20,000. H. Stewardson, City Hall, engr. CD 12/1.

Man., Winnipeg—Watermains, Fort Rouge Dist. $20,000. W. P. Brereton, City Hall, engr.

Ont., Geraldton—L. P. Dreany, municipality clk., water exten. to Johnstonville area. $15,000.

Ont., Goderich—Public Utilities Comn., J. B. Kelly, supt., bids soon chlorinating plant. About $40,000. CD 2/19—ENR 2/23.

Ont., Queenston—Niagara Twp. Council, F. H. Sheppard, chn., covered reservoir, mains and distr. sys. $35,000. Water will be supplied by city of Niagara Falls. Robertson Eng. Co., 2 Clifton Ave., Niagara Falls, engrs. CD 2/20—ENR 2/23.

Ont., Wallaceburg—G. F. Glassford, town clk., bids soon new WW plant. $100,000. W. Clendenning, Wallaceburg, engr.

BIDS ASKED

Bids Asked March 14

Mass., Centerville and **Osterville**—Fire Station, Osterville, pump. stations and equip. Total est. $432,000. PWA. Whitman & Howard, 89 Broad St., Boston, engrs. CD 8/31—ENR 9/1, under C.A.

Bids Asked March 15

D. C., Wash.—Dist. Comrs., District Bldg., watermain rearrangement in Municipal Center. $50,000. PWA.

Bids Asked March 16

Ia., Farmersburg—Complete WW sys. $25,840. PWA. Burd, Bartels, Eitel & Cullen, Farmersburg, engr. CD 1/4—ENR 1/12, under C.A.

Bids Asked March 17

†Calif., Sacramento — Con. Q. M., Sacramento, water supply sys. in radio transmission building.

Bids Asked March 18

Miss., Pascagoula—WW imprv., laying watermains, placing additional hydrants for water protection. $96,000. PWA. L. C. Winterton, Pascagoula, engr. CD 9/30.

Bids Asked March 20

Mass., Chicopee—G. Webster, supt. Water Dpt., 27 Tremont St., Contr. 2, filter equipment and piping, only. Tentative date. PWA. Morris Knowles, Inc., 507 Westinghouse Bldg., Pittsburgh, Pa., engrs.

R. I., Providence—Clerk Bd. Contr. & Supply, City Hall, exten. and imprvs. water purification works, Scituate. PWA. J. F. Collins, mayor and chn.; adv. ENR 3/9.

Bids Asked March 24

Minn., Lowry—WW. (except well). Total est. $29,902. PWA. F. P. Schaub, Hagestad, engr. CD 12/23—ENR 12/29.

Bids Asked

Pa., Shaler Twp.—Bd. Township Comrs., E. J. Waldman, Jr., secy., Municipal Bldg., Glenshaw, drilling wells for waterworks. Chester Engineers, Century Bldg., Pittsburgh, engrs. CD 11/16, under "Public Buildings."

LOW BIDDERS

★**N. Y., New York**—Bd. Water Supply, G. J. Gillespie, pres., R. H. Burke, Jr., secy., 346 Bway., Mar. 1, Contr. 318, portion of Rondout-West Branch Tunnel, Delaware Aqueduct, in towns of Marlboro, Ulster Co., Newburgh, Orange Co., and Wappinger and Fishkill, Dutchess Co., from Pleasantville Constructors, Inc., Pleasantville, $10,679,710. CD 2/10—ENR 2/16.

★**S. C., Greenville**—Greenville WW Comn., Feb. 27, furnishing, installing 22 mi. 30 in. pipe line through mountains from Table Rock to Greenville, from Hardaway Contg. Co., 15-11 St., Columbus, Ga., $773,944. CD 2/3—ENR 2/9.

CONTRACTS AWARDED

Calif., Lomita—Lomita County Water Works Dist. 13, watermains, booster pump plant, steel storage tanks **WPA. $60,000.** R. E. Schonerd, Hall of Records, Los Angeles, engr.

†Calif., San Fernando—Veterans' Administration, Arlington Bldg., Wash., D. C., drilling test well at Veterans' Administration Facility, Proposal 1594, to Barber & Bridge Drilling Corp., Ltd., 3020 Empire Ave., Burbank, **$2,579.** Bids 2/21, awarded 3/1. CD 2/3—ENR 2/9.

Fla., Jacksonville—Exten. WW mains and hydrants, in South Jacksonville, to C. T. Dawkins, 2613 Sunset Dr., Tampa. **$66,351.**

Water Supply (Continued)

Fla., Melbourne — Water treatment plant, pump, distr. lines, treatment plant, to Murphey Constr. Co., West Palm Beach, **$20,920. PWA.** Bids 2/20. A. Youngberg & Assoc., Inc., 1604 Lynch Bldg., Jacksonville, engrs.

Ga., Forest Park — M. Waldrop, mayor, water distr. sys., incl. mains, meters, hydrants, etc., to J. R. Cothran, 3474 Piedmont Rd. N.E., Atlanta, **$14,390.** Bids 2/25. CD 2/15.

Ga., Newton—WW, to Espy Paving Co., 2821 Bull St., Savannah, **$19,987.** Bids 2/24. CD 2/8—ENR 2/16.

Idaho, Midvale—L. J. Crumb, chn. Town Bd., drilling well for WW. sys., to I. H. Williams, 2104 Resort St., Baker, Ore. Total est. $26,365. Bids 12/24. CD 12/21.

Ky., Campbellsburg—Contr. 3, steel tank, to Pittsburgh-Des Moines Steel Co., 38 S. Dearborn St., Chicago, Ill., **$7,342.** Bids 2/20. CD 2/1—ENR 2/9.

Mich., Battle Creek—Electrical work for pump house, 6,000 ft .440 v. conductor, to Service Electric Co., Ann Arbor, **$5,940.** CD 2/15—ENR 2/23 under CA.

Mich., Battle Creek—T. H. Thorne, city clk., 18 brick pumphouses, concrete substructures, to R. E. Dailey & Co., 507 C.P.A. Bldg., Detroit, **$29,500. PWA.** Bids 2/9. CD 2/1.

Mich., Davison — E. A. Hartman, village clk., distr. sys., pumphouse, etc., to Brandon & Reed, Inc., Grand Blanc, **$56,800*****wells, to O. O. Corsaut, Royal Oak, **$1,384*****elevated tank, to Chicago Bridge & Iron Co., 37 W. Van Buren St., Chicago, Ill., **$8,565.** Grand total $66,749. **PWA.** Bids 11/18. CD 11/10.

Mich., Troy—G. W. Ladd, clk. Troy Twp., Route 2, Birmingham, elevated steel tank, to Chicago Bridge & Iron Co., 37 W. Van Buren St., Chicago, Ill., **$10,345. PWA.** Bids 12/10. CD 12/6.

Minn., Minneapolis — A. P. Erickson, aud. Hennepin Co., drilling Well 4, to McCarthy Well Co., 670 Eustis St., St. Paul, **$5,253.** Bids 1/30. CD 1/25.

Neb., Fremont—Mains for WW. imprvs., to Fremont Fdry. & Machine Co., Fremont, **$18,657;** electrical work, to Gray Bar Electric Co., 1120 Capitol St., Omaha, **$2,500.** Bids 2/21. CD 2/10—ENR 2/16.

Neb., Lincoln — Mains for water plant imprv., to Dobson & Robinson, 824 First Natl. Bank Bldg., Lincoln, **$22,971.** Est. $36,000. PWA. Bids 2/21. CD 2/16.

N. J., Freehold—Boro, watermains, exten. sewer, laying pipe, etc., **WPA. $17,852.**

N. J., Ship Bottom and **Beach Arlington**—Boros, imprv. WW. plant, exten. mains, laying pipe, installing gate valves, fire hydrants, filter, pump and control, sedimentation tank at Ship Bottom and Beach Arlington, **WPA. $21,411.**

N. Y., Jamestown—Bd. Pub. Utilities, City Hall, relaying c.i. main feed lines 2nd St. and Prendergast Ave., exten. present mains various parts of city, own forces under supervision C. O. Johnson, supt., c/o owner. **$15,000** plus.

N. Y., Saltaire—Reclaiming, reconstructing water pump. and distr. sys., **WPA.** Over **$25,000.**

N. C., Burlington—E. B. Horner, mayor, exten. water mains, **WPA. $22,988.**

N. C., Fair Bluff—Sect. 1, waterworks, to C. Y. Thomason, Greenwood, S. C., **$35,734. PWA.** Bids 2/17. CD 2/3—ENR 2/9.

N. C., Gastonia—Exten. water distr. sys., **WPA. $11,404.** P. T. Withers, city engr.

N. C., Rich Square—Sect. 4, WW imprv., to Fairbanks-Morse Co., 515 Whitehall St. S.W., Atlanta, Ga. Bids 2/17. CD 2/7—ENR 2/9.

N. C., Rural Hall—Sect. A, water and sewerage sys., to Boyd & Goforth, Inc., 617 N. Smith St., Charlotte, **$50,208;** Sect. B, elevated tank, to Chicago Bridge & Iron Co., 37 W. Van Buren St., Chicago, Ill., **$7,735.** Bids 2/18. CD 2/1—ENR 2/9.

N. C., Tabor City—R. C. Harrelson, mayor, exten. watermains, **WPA. $28,852.**

Tex., Corsicana—Town, E. Rittenbacker, mayor, WW sys. imprv., filtration plant and 3 mi. distr. lines, etc., "Purchase and Hire." plan. **$125,000. WPA.** Freese & Nichols, Capps Bldg., Fort Worth, engrs.

Tex., Fort Worth—Dudley Lewis, city mgr., laying 43,400 ft. c.i. pipe in different sects. city, **WPA. $181,510.** W. O. Jones, Fort Worth, engr.

Wis., Middleton—Sanitary Dist. 1, WW sys. for subdivisions of Middleton Beach, West Lake Park and Oak Beach, **WPA. $15,000.** T. Lankow, 119 E. Washington Ave., Madison, engr.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Calif., Brentwood—Brentwood Sanitary Dist. voted to form district to finance construction sanitary sewers and sewage disposal plant. Over $25,000. J. S. Bates, 3134 Eton Ave., Oakland, engr. CD 12/29—ENR 1/12.

Conn., Shelton—Engineering study completed sewage treatment plant, trunk and intercepting sewers. Over $25,000. T. F. Bowe, 110 William St., New York, engrs. CD 10/13.

La., New Orleans—Common Council addn. to Incinerator E, at Eads and Industry Sts. 200,000. C. Schneider, New Orleans, engr.

Mo., St. Louis County—Lakewood Sewer Dist., T. P. Barrett, 5029 Langley St., St. Louis, secy., $61,000 bond election Apr. 11, sanitary and storm water sewers in Lakewood Sewer Dist., west side of Gravois Rd. Will seek $259,598 WPA allotment.

N. J., Passaic—Storm sewers River Dr., Falsom, Gregory and Hope Aves. between Schuman and Monroe Sts. $26,161. WPA. W. Burke, foot of 5th Ave., Paterson, WPA and owner's engr.

N. J., Clifton—Sanitary sewers, Hazel St. from Prieget to Walman Aves. $25,154. WPA. W. Burke, foot of 5 Ave., Paterson, WPA and owner's engr.

N. J., Nutley—Town, rein.-con. storm sewer, Harrison, San Antonio and Frank Sts., $35,845. WPA. D. Shepherd, Town Hall, WPA engr.

N. J., Paterson—Sanitary sewers, Cleberon and Totowa Aves. $41,183. WPA. W. Burke, foot of 5 Ave., Paterson, WPA and owner's engr.

N. J., Ridgefield—Boro, exten. sanitary sewers, and new storm sewer, New York St., Elm and Ray Aves. $30,448. WPA. W. Burke, foot of 5th Ave., Paterson, WPA and owner's engr.

N. Y., Clinton—Bd. Trustees, rejected bids Mar. 1, sewage disposal plant. Will readvertise. PWA. A. J. McLaughlin, Paul Bldg., Utica, engr. CD 2/23—ENR 12/22.

N. Y., Endicott—Additional storm sewers, paving afterwards. Over $25,000. **Maturity later.** T. J. Lainhart, mayor.

N. Y., Lockport—Comr. P. Wks., cancelled bids to have been opened Mar. 10, Contr. 6, relief sewer program Willow St., $80,000; Contr. 7, relief sewer, Washburn St., $31,000. PWA. Will readvertise. Shoecraft, Drury & McNamee, Ann Arbor, engrs. CD 3/1.

N. Y., North Syracuse—Sewage disposal plant, 28 River St. Site purchased.

N. Y., Rochester—Combined sewer, Rochester and Cambria Sts., concrete pipe in concrete cradle, Pittsburgh St. $30,800.

N. Y., Scotia—Authorized purchase filtration unit for sewage disposal plant. $5,300. **Maturity at once.** C. W. Gillespie, village engr.

N. C., Fair Bluff—Rejected bids Feb. 17, sewerage sys. Over $25,000. Will advertise. J. B. McCrary Co., 22 Marietta St. Bldg., Atlanta, Ga., engrs. CD 2/3—ENR 2/9 under "Waterworks."

O., Ashland—Sewage disposal plant. $25,000. E. D. Barstow, 31 N. Summit St., Akron, engr. E. M. Kerr, city engr.

O., Bowling Green—Wood Co., 90 mi. roadside and ditch drainage work. Over $25,000. WPA. E. F. Metzger, Bowling Green, co. engr.

★**O., Canton**—Stark Co., trunk sewer auxiliary lines in Genoa-Reed urban sewage dist. $1,000,000. WPA may provide $790,000 of cost. G. Davidson, Courthouse, Canton, engr.

O., Mansfield—Revamping entire sanitary sewerage sys. $100,000. Will seek approval $50,000 bond issue at once. J. R. Turner, Mansfield, engr.

Okla., Afton—W. R. Denison, mayor, sewage disposal plant. $28,000. A. J. Root, Quapaw, engr.

Okla., Lawton—Sanitary sewerage sys., Belleville Addn. $28,000. W. B. Hendricks, city engr.

Pa., Youngstown—Boro, W. Brozze, secy., sewage disposal plant for primary treatment and interceptor sewer. Special election March 28, $30,000 bonds. Hill & Hill, 24 E. Main St., North East, engrs.

Tex., Marlin — Incinerator $70,000; storm sewers $75,000. Bonds voted. Engineer, c/o city.

Va., Virginia Beach—Sanitary sewers, manholes in Cavalier Shores and Hollies sections. $26,100. PWA.

★**Wash., Spokane**—100,000 ft. sewers. $900,000. WPA asked to allot $735,090 for labor. A. D. Butler, City Hall, engr.

Alta., Edmonton—A. Russell, municipality clk., sewers, drainage. $88,000. Money voted. A. W. Haddow, City Hall, engr.

Alta., Hanna—J. H. Stephens, municipality clk., sewerage sys. and sewage disposal plant. $60,000. Ratepayers approved by-law.

B. C., Victoria—Sewers. Voted $37,400. C. Jones, City Hall, engr. CD 8/25.

Man., Winnipeg—Sewers, Fort Rouge Dist. $25,000. W. P. Brereton, City Hall, engr.

Ont., Hamilton — A. W. Broughton, clk. Barton Twp., sewage disposal plant and sewerage sys. Over $25,000. **Maturity spring.**

Ont., Kenora—F. J. Hooper, municipality clk., wants prices incinerator.

B. C., Vancouver—Sewers, various streets. $155,000. C. Brakenridge, City Hall, engr.

Que., Ste Foy—O. Gingras, mayor, collector sewer. $60,000. Dpt. P. Wks., Quebec City, engrs.

Ont., South Porcupine—Tisdale Twp., F. C. Evans, secy., sewage plant and sewer exten. $34,852.

BIDS ASKED

Bids Asked March 13

N. Y., New York—President Bronx Boro, Bronx County Bldg., E. 161 St. and Grand Concourse, sewer, appurtenances O'Brien and Underhill Aves.; furnishing, delivering vitr. pipe, portland cement, common brick, sand, stone, cinders, c.i. manholes heads and covers, wrought iron manhole steps for sewers, Warbing Ave.; furnishing, delivering rented equipment, etc.

Bids Asked March 15

N. Y., Orchard Park—Village, Contracts 1 and 2, sewerage sys. and disposal plant. Est. $268,223. Industrial Planning Corp., 721 Delaware Ave., Buffalo, engrs.; adv. ENR 3/2. PWA. CD 2/24—ENR 3/2 under BA.

N. Y., St. George—President Richmond Boro, Boro Hall, sanitary sewer, Burbank Ave., furnishing, delivering materials, and rental of equip. for same.

Wis., Milwaukee—Sewers in S. Brust St. and E. Saveland Ave., Proposal A $142,700; E. Saveland and S. Clement Aves. Proposal B $111,500; Proposal C, combination Proposal A and B $254,200. PWA. J. P. Schwada, city engr.

Bids Asked March 17

Kan., Great Bend—Storm sewers, drainage imprvs., creosote wood pile and concrete bridges, entrance crossings. Paulette & Wilson, Farmers Union Bank, Salina, engrs.

Minn., Goodhue—Sewers and sewage plant. $65,450. PWA. E. G. Briggs, 1955 University Ave., St. Paul, engr. CD 11/4—ENR 11/10 under WW.

Bids Asked March 21

Ky., Frankfort—Contr. A-20, complete sanitary and storm sewerage sys., $25,000; Contr. A-21, complete sewage disposal plant, buildings, basins, etc., $50,000. PWA. R. C. Wyatt, Frankfort, ch. engr.

Minn., New Richland—Sewers and disposal plant. $102,000. PWA. Druar & Milinowski, Globe Bldg., St. Paul, engrs. CD 11/4—ENR 11/10.

R. I., North Providence — Clerk Sewer Comn., at office Town Clerk, Town Hall, Contr. 5, sanitary sewers, various streets, and Canada Pond trunk sewer. $180,000. S. J. Kiernan, chn. Sewer Comn. C. A. Maguire, 613 Turks Head Bldg., Providence, consult. engr.; adv. ENR 3/9.

Bids Asked March 22

Conn., Meriden—F. R. Danaher, mayor, and Bd. P. Wks., at office of Mayor, City Hall, sewage treatment plant, Imhoff tanks, Contr. 2. PWA. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs.; adv. ENR 3/9.

Mo., Webster Groves (St. Louis P. O.)—Webster Groves Sanitary Sewer Dist., W. H. Brown, secy., 122 W. Lockwood St., vitr. Clay pipe sewers, Sub-Dist. 16. Est. $74,500. W. W. Horner, ch. engr., 1312 International Office Bldg., 8 and Chestnut Sts., St. Louis, engr. CD 10/6—ENR 10/13.

Bids Asked March 24

Pa., Ephrata—President and Members of Boro Council, Boro Council Chamber, Locust St., general construction Contr. 6, mechanical equip., Contr. 7, or both contracts in conjunction, sewage treatment plant. PWA. D. C. Wagner, boro mgr. W. A. Goff, 220 S. 16 St., Phila., consult. engr.; adv. ENR 3/9.

CONTRACTS AWARDED

Idaho, Filer—Laying 26,000 ft. 6-to 15-in. concrete sewer tile, constructing septic tank, **WPA $91,700.** H. W. Merritt, Twin Falls, engr. CD 12/23—ENR 12/29.

Ill., Robinson — Sewers, treatment plant extens., **WPA. $234,000.** E. Lieberman, Centennial Bldg., Springfield, engr.

Ill., Rock Island—4th unit intercepting sewer project, to McCarthy Imprv. Co., Kahl Bldg., Davenport, Ia., **$213,407.** Bids 2/14. CD 1/30—ENR 2/2.

Ill., South Jacksonville—Sewers and water sys., **WPA. $79,000.**

Ind., Gary—Bd. Sanitary Comrs., J. E. Rowley, City Hall, pres., Miller Sewer Interceptor, to Power Thompson Constr. Co., Joliett, Ill., **$211,644.** Bids 2/21, awarded 2/24. CD 2/15.

★**Mass., Boston**—Metropolitan Dist. Comn., 20 Somerset St., W. E. Whittaker, secy., Sects. 102 and 103, North Metropolitan Relief Sewer, Everett and Chelsea, to Silas Mason, 500 5 Ave., New York, **$1,604,000. PWA.** Bids 2/23, awarded 3/3. CD 2/27—ENR 3/2.

Mass., Saugus—C. E. Flynn, chn. Sewer Comn., Town Hall, Contr. pump. sta. equip., to Starkweather Eng. Co., Inc., 246 Walnut St., Newtonville, **$20,600. PWA.** Bids 1/19, awarded 2/24. CD 1/5—ENR 1/12.

Mich., Detroit—Dpt. P. Wks., one unit automatic standby house service and auxiliary equip., Jefferson and Clairpointe Aves., to F. J. O'Toole Co., 432 E. Bethune St., **$5,945.** Bids 1/19. CD 1/6—ENR 1/12.

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

LEVEE WORK, KENTUCKY

OWNER: U. S. Engineers, Louisville office.

PROJECT: Construction of an earth levee and appurtenant structures near Paducah, Ky. Length of levee is 30,000 ft.; height ranges from 10 to 15 ft.; side slopes are to be 1 on 3 with 8 ft. crown. Levee is to be of rolled fill. Stipulated contract time is 450 days. Transportation facilities by rail, highway and water are available.

BIDS: Twenty bids were received Jan. 17, 1939, ranging from $202,120 to $317,704. Minimum labor rates are as follows: skilled, $1.25 per hr.; semi-skilled, 60c. per hr.; common, 40c per hr.

LOW BIDDERS:

1. Boone & Wester, Fort Lauderdale, Fla.	$202,120
2. R. B. Potashnick, Cape Girardeau, Mo.	208,357
3. Horton & Coleman, Inc., Memphis, Tenn.	210,425

Item	Quan.	Unit Prices		
		(1)	(2)	(3)
1. Levee embankment	639,300 c. y.	$0.18	$0.193	$0.2087
2. Excav., diversion channel	52,450 c. y.	0.12	0.193	0.09
3. Conc.	450 c. y.	22.00	25.00	39.00
4. Reinf.	26,900 lb.	0.045	0.05	0.05
5. Cor. pipe (12 in.)	60 l. f.	1.65	1.75	1.50
6. Cor. pipe (24 in.)	595 l. f.	3.50	3.00	3.35
7. Cor. pipe (30 in.)	271 l. f.	5.35	4.50	5.40
8. Cor. pipe (36 in.)	343 l. f.	6.50	5.25	6.85
9. Cor. pipe (48 in.)	680 l. f.	10.50	8.50	9.85
10. Cor. pipe (60 in.)	499 l. f.	15.00	12.00	15.40
11. Cor. pipe (84 in.)	216 l. f.	21.50	18.00	20.00
12. Seep rings, cor. iron, No. 10 gage	3,130 s. f.	1.25	0.90	1.20
13. Flood gates (24 in.)	8 ea	85.00	75.00	96.00
14. Flood gates (30 in.)	2 ea.	130.00	100.00	128.00
15. Flood gates (36 in.)	2 ea.	210.00	175.00	188.00
16. Flood gates (48 in.)	3 ea.	385.00	300.00	325.00
17. Operating tower and sluice gates (48 in.)	L.S.	1,800.00	1,500.00	1,500.00
18. Hand placed riprap stone	660 c. y.	6.00	4.00	4.00
19. Gravel blanket	350 c. y.	3.75	1.75	2.25
20. Gravel ballast	675 c. y.	2.50	1.60	2.25
21. Excav., common	3,830 c. y.	0.60	0.60	.50
22. Backfill, compacted	2,550 c. y.	0.60	0.20	.50
23. Tile drain, 12 in.–4 ft. to 6 ft. depth	2,760 l. f.	1.80	2.25	.70
24. Tile drain, 12 in.–6 ft. to 8 ft. depth	3,250 l. f.	2.20	2.75	.80
25. Tile drain, 18 in.–4 ft. to 6 ft. depth	35 l. f.	2.85	3.10	1.28
26. Tile drain, 18 in.–6 ft. to 8 ft. depth	50 l. f.	3.30	3.70	1.38
27. Tile drain, 18 in.–8 ft. to 10 ft. depth	175 l. f.	3.75	4.30	1.60
28. Vault door	1 ea	200.00	150.00	175.00
29. Seal trench filler	32 s. f.	0.40	1.00	.50
30. Bit. paving	1,400 s. y.	3.00	2.25	2.00
31. Conc. paving	2,100 s. y.	3.00	2.50	3.00
32. Struct. steel	100 lb.	0.35	0.20	.25
33. Rolling for each three additional passes	84,000 square (100 sq. ft.)	0.02	0.04	.02

SEWERS, MINNESOTA

OWNER: City of South St. Paul, Minn.; Consoer Townsend & Quinlan, Chicago, engineers.

PROJECT: Construction of an intercepting sewer in connection with a sewage treatment plant project. Project consists of 2,185 ft. of 18-in. vitrified tile sewer; 500 ft. of 18-in. cast iron sewer; 500 ft. of tunnel for an 18-in. sewer pipe; 12 manhole bases and covers; 94 ft. of manhole sidewalls. Stipulated contract time is 150 days. Transportation facilities by rail and highway are available.

BIDS: Seven bids were received Dec. 22, 1938, ranging from the contract low of $14,300 to $29,350. Minimum labor rates are as follows: skilled, $1.00 per hr.; semi-skilled, 75c. per hr.; common, 75c. per hr. Unit prices given below are for additions to or deductions from the bid price.

LOW BIDDERS:

1. Orfei, Lametti & Lametti, St. Paul (contract)	$14,300
2. Barnett & Record Co., Minneapolis, Minn.	14,330
3. Thornton Construction Co., Hancock, Mich.	16,610

Extra Work Items	Unit	Unit Prices		
		(1)	(2)	(3)
1. 18-in. V. T. sewer in open trench	l. f.	$3.75	$3.00	$4.00
2. 18-in. C. I. sewer in open trench	l. f.	6.00	6.20	5.00
3. 18-in. C. I. sewer in tunnel	l. f.	11.76	9.80	11.00
4. Manhole base and cover	ea.	31.25	56.00	90.00
5. Manhole sidewall	vert. f.	10.00	6.00	15.00
6. Addition for drop sect	ea.	22.41	48.00	20.00
7. Cradle cone	c. y.	15.00	16.00	20.00
8. Gravel trench refill	c. y.	3.50	4.90	2.00
9. Wood piling below cutoff	l. f.	2.00	5.00	1.00
10. Sheeting left in place	M.b.m.	50.00	30.00	60.00
11. Rock excav	c. y.	10.00	9.00	10.00

HIGHWAY BRIDGE, TEXAS

OWNER: Texas State Highway Department, Austin; Don L. Hook, Georgetown, engineer.

PROJECT: Construction of north and south San Gabriel River bridges, extending over 0.329 miles. Location is on U. S. Route 81 in Williamson county.

BIDS: Nine bids were received Feb. 21, 1939, ranging from $189,935 to $212,317.

LOW BIDDERS:

1. Dean Ward	$189,935
2. Austin Bridge Co.	191,180
3. McKenzie Construction Co.	191,236

Item	Quan.	Unit Prices		
		(1)	(2)	(3)
1. Clearing & grubbing	7 acre	$25.00	$25.00	$100.00
2. Common road excav	5,917 c. y.	.30	.24	.28
3. Special road excav	461 c. y.	.20	.24	.28
4. Special borrow	19,189 c. y.	.20	.24	.19
5. Uncl. str. excav. (bridges) (105)	3,340 c. y.	2.75	3.50	2.00
6. Uncl. str. exc. culvs	185 c. y.	1.50	1.50	1.30
7. Blading embank	215 hrs.	3.00	4.75	2.65
8. Overhaul	15,533 y. qtr.	.07	.05	.07
9. Sprinkling	640 M. gal.	1.00	1.00	.80
10. Rolling	30 hrs.	4.00	3.00	4.50
11. Rolling	181 hrs	2.50	3.50	3.50
12. Rolling	23 hrs.	3.00	3.00	3.00
13. Scarify. exist. pvt.	10 sta.	5.00	15.00	3.50
14. Asphalt (OA–135)	1,864 gal.	.20	.215	.13
15. Aggregate	62 c. y.	5.00	3.50	3.00
16. Conc. pvt.	4,773 s. y.	1.90	2.25	2.00
17. Reinf. steel for pvts	25,990 lb.	.04	.04	.035
18. Cl. A. conc., culverts	18 c. y.	19.00	17.20	24.00
19 Cl. A. conc., slabs	1,156 c. y.	19.00	17.20	19.00
20. Cl. A. conc. (abutments, bents & piers) (403)	1,730 c. y.	19.50	17.20	19.00
21. Mortar rubble masonry	23 c. y.	10.00	10.80	13.00
22. Reinforcing steel	432,096 lb.	.04	.04	.043
23. Struct. steel	1,325,444 lb.	.05	.051	.05
24. 12 in. Ex. str. reinf. conc. pipe	635 l. f.	1.50	1.05	1.25
25. 24 in. Ex. str. reinf. conc. pipe	30 l. f.	3.00	2.90	3.10
26. 36 in. Ex. str. reinf. conc. pipe	62 l. f.	4.75	5.25	5.30
27. Removing old strs	2 ea.	10.00	20.00	5.00
28. Remov. old strs., drs	2 ea.	1750.00	1800.00	1300.00
29. Dry riprap, type C	960 c. y.	4.00	3.75	3.20
30. Grouted riprap, type A	47 c. y.	6.00	7.80	8.50
31. Fertilizer	30 ton	50.00	100.00	50.00
32. Block sodding	4,743 s. y.	.15	.23	.16
33. Rock retards	20 c. y.	2.50	3.60	3.50
34. Conc. curb & gutter	1,864 l. f.	1.35	1.20	1.00
35. Right-of-way markers	5 ea.	1.50	3.00	3.00
36. Sidewalks	760 s. y.	1.90	2.40	2.00
37. Timber post guard fence	65 ea.	2.50	1.80	1.40
38. Remov. old conc drvwy	640 s. y.	.30	.25	.22
39. Euonymus japonicas B & B heavy specimens	285 ea.	2.05	1.50	2.00
40. Roadside topsoil	29 c. y.	1.50	1.50	1.10
41. Obliterate abandoned rd. (Sp.)	9 sta.	10.00	25.00	30.00
42. Cast iron frames, grates ; covers (Sp.)	6 ea.	11.50	11.00	14.00
43. Detour bridges (Sp.)	2 ea.	3000.00	3500.00	5500.00

(Contract unit prices continued on page 15)

Sewers, etc. (Continued)

Mich., Detroit—Dpt. P. Wks., electric power service sys. for Sewage Disposal Plant 9602-R, West Jefferson Ave. and River Rouge, to John Miller Electrical Co., 711 Fisher Bldg., **$139,917. PWA.** Bids 2/23. CD 2/6—ENR 2/9.

Mich., Flat Rock—Wayne Co. Rd. Comn., 3800 Barlum Tower, Detroit, one unit disposal plant, Huron River Dr. and Van Riper Ave., to Northwest Constr. Co., Jackson, **$24,980. PWA.** Bids 2/20. CD 2/7—ENR 2/9.

Mo., North Kansas City—Storm sewer, **WPA. $125,000.** M. M. Fitch, city engr.

Neb., Omaha—Storm sewer, Grand Ave. **WPA. $40,000.** H. Trustin, city engr.

Neb., Omaha—Storm sewer, vicinity 24 and Clark Sts., **WPA. $135,000.** H. Trustin, city engr.

N. J., Trenton—Hamilton Twp. Com., Contr. 2, sewer exten., to L. Butler & Co., Katonah, N. Y., **$395,000.** Bids 2/14. CD 2/1—ENR 2/9.

N. Y., Albany—Clearing, cleaning, waterway exposing joints and constructing concrete cradle under 1,800 lin. ft. 12 in. vitr. tile sewer pipe, Doris St., **WPA.** Est. **$25,000.**

N. Y., Bronxville—General renovation, modernization sanitary and storm sewers, various streets, **WPA.** Approx. **$25,000.**

N. Y., Buffalo—Dpt. P .Wks., rein.-con. storm drain, intercepting chamber, tile sanitary sewers, various streets, **WPA.** Over **$100,000.**

N. Y., Corning—Installing new storm and sanitary sewers, c.i. watermains, Delevan and East Sts., **WPA. $33,830.**

N. Y., Greenburgh, (P. O. Tarrytown)—Town of Greenburgh, Sewer Dist., complete sewerage sys., **WPA.** Over **$100,000.**

N. Y., Irondequoit—Sanitary sewers, manholes, laterals, pavement replacement, **WPA.** Over **$25,000.**

N. Y., Lockport—Relief sewer, Contr. 4, in Prospect St. and West Ave., to Kalill Co., Niagara St., Buffalo, **$93,000;** relief sewer, 7th Ward, Contr. 5, Bids 1B to 4B, and 5 to 23 (inclusive), to Depew Paving Co., Main St., Depew, **$65,000. PWA** Bids 2/24. CD 2/16.

N. Y., Manchester—Contr. B, sewage disposal plant, to H. M. Bolton, 94 Seneca St., Geneva, **$49,934. PWA.** Bids 2/20. CD 2/14—ENR 2/16.

N. Y., Norwich—Additional storm and sanitary sewers, concrete curbs, gutters, resetting sidewalks, various streets. **WPA.** Over **$50,000.**

N. Y., Patchoque—Additional sewers, concrete block catch basins, various streets, Job 7, **WPA.** Over **$35,000.**

N. Y., Schenectady—96 in. pipe line along Mohawk River, **WPA.** Over **$25,000.**

N. Y., Tupper Lake — Sanitary sewers, trenching, laying pipe, etc., **WPA.** Over **$25,000.**

N. C., Gastonia—Imprv. sanitary sewerage sys., **WPA. $123,260.** P. T. Withers, city engr.

N. C., Satesville—Sewerage imprv., Div. 2, 2 m.g. plant, to V. B. Higgins & Co., Greensboro, **$232,940.** Est. $225,000. Bids 2/28. CD 2/17—ENR 2/23.

O., Troy—Sewage disposal plant, to Green & Sawyer, Lima, **$127,427.** Est. $132,000. Bids 2/21. CD 2/16.

Tex., Anahuac—Chambers Co., c/o Judge, storm sewers, surface drainage throughout town, "Purchase and Hire" plan, **$25,451. WPA.**

Tex., Brownsville—R. B. Rentfro, mayor 41,715 lin. ft. vitr. clay sewer line extens., day labor, **$101,400.** J. O. Kelly, Brownsville, engr.

Tex., Denton—W. N. Harris, city engr., sanitary and storm sewer exten., "Purchase and Hire" plan, **$105,313. WPA.**

Tex., Gonzales—Gonzales Co., c/o Judge, installing septic tank sys., "Purchase and Hire" plan, **$25,240. WPA.**

Tex., Jacksonville—T. E. Acker, mayor, concrete and surface storm sewers, **$48,241. WPA.** F. L. Faust, Jacksonville, WPA engr.

Tex., Ranger—H. Walker, mayor, imprv. drainage facilities and storm sewers, **WPA. $35,913.** F. Buford, Abilene, engr.

Wash., Camas—B. G. Smith, engr., City Hall, sewerage sys., Evergreen Terrace, **WPA. $54,000.** CD 1/19—ENR 1/26.

W. Va., Huntington—Storm sewerage sys., **WPA. $190,000.** J. S. Gillespie, Huntington, engr.

Wis., Manitowoc—Bd. P. Wks., Contr. 3, revetment wall, to Great Lakes Dredge & Dock Co., 740 N. Plankington Ave., Milwaukee, **$71,500*****outfall sewer and river crossings, to McMullen & Pitz, Manitowoc, **$16,367** and **$32,176** respectively***earth fill for disposal plant, to F. J. Robers, Burlington, **$29,600.** Grand total $149,643. **PWA.** Bids 2/27, CD 2/24.

BRIDGES, GRADE CROSSINGS

PROPOSED WORK

Arizona—State Hy. Comn., Phoenix, bids soon 4-lane underpass beneath railroad tracks, South Central Ave. $250,000. W. R. Hutchins, state hy. engr.

Calif., Los Angeles — Widening rein.-con. arch. bridge, Pacoima Wash, San Fernando Rd., $48,600; constructing rein.-con. bridge over Los Angeles River, Lankershim Blvd., $400,000. PWA. R. W. Stewart, City Hall, engr.

Conn., Manchester — Bd. Selectmen, Town Hall, rein.-con. overpass, Park St. $25,000. J. F. Bowen, town engr.

★**Illinois**—State Dpt. P. Wks. and Bldgs. Div Hys. Centennial Bldg., Springfield, bridge over Illinois River. $1,500,000. E. Lieberman, Centennial Bldg., Springfield, engr.

Illinois—State Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield, overhead cross tracks Nickel Plate, Ill. Central, Illinois Terminal, and Louisville & Nashville R. R. west of Stallings, grade separation with C. C. C. & St. Louis R. R. southeast of Oldenburg, E. Lieberman, Centennial Bldg., Springfield, engr.

Illinois—State Dpt. P. Wks & Bldgs. Div. Hys. Centennial Bldg., Springfield, was authorized by Illinois Commerce Comn. to separate grades of St. Bond Is. Route 12 (St. Clair Ave. and tracks of Alton & Southern R. R.) by means of hy. subway. E. Lieberman, Centennial Bldg., Springfield, engr.

Ill., Shawneetown—Gallatin Co., c/o Co. Bd. Superv., bill presented to Congress authorizing construction rein.-con. steel bridge across Ohio River to carry vehicular and pedestrian travel, etc.

Iowa—State Hy. Comn., Ames, 30x207 ft., rein.-con. arch bridge FA 305, Dubuque Co. F. R. White, ch. engr., Ames.

Iowa—State Hy. Comn., Ames, 12x16x109 ft. concrete box culvert, 135x24 ft. continuous I-beam bridge FA 521, Shelby Co. F. R. White, ch. engr.

Ky., Louisville—Underpass under L. & E. R. R. at 7 and Magnolia Sts., $75,000. City Engineer, City Hall, engr.

Missouri—State Hy. Comn., Jefferson City, C. W. Brown, engr., plans repairing piers of bridge over Missouri River, St. Charles-St. Louis Rd., Route 61, Project FA 79 B2, St. Louis and St. Charles Counties; 111 ft. bridge over Forman Branch, Memphis-Kahoka Rd., Route 4, Project FA 310C4, Scotland Co., 55 ft. under Missouri-Pacific R.R. tracks, Chippewa St., St. Louis, Route 66, Project FAGM 608 F1, St. Louis Co.; 868 ft. bridge, retaining walls, under Missouri-Pacific R.R. tracks, Chippewa St., Route 66, FAGM 608 F1, St. Louis, St. Louis Co.

Mo., Kansas City—City, c/o H. F. McElroy, city mgr., rein.-con. bridge over Blue River, 39 St. Est. $90,000. Ash, Howard, Needles & Tammen, Orear-Leslie Bldg., engrs.

N. J., Hackensack—Bd. Freeholders Bergen Co., Administration Bldg., steel beam rein.-con. fixed span bridge over Hackensack River, Anderson St. $400,000. R. P. McClave, Administration Bldg., engr.

N. J., Newton—Bd. Freeholders Sussex Co., Courthouse, 39 rein.-con. bridges in various towns of county. $227,827. W. Burke, foot of 5th Ave., Paterson, WPA and owner's engr.

N. J., Trenton—Mercer Co. bridge over Assunpink Creek at John Fitchway. $40,750. H. F. Harris, Courthouse, engr.

N. Y., Syracuse—R. D. Marvin, mayor, City Hall, constructing 21 bridges over Onondaga Creek along State Fair Blvd. $41,000.

N. Y., Victor—Bd. Supervs., Ontario Co., Canandaigua, bids soon, bridge on Van Voorhis Rd., near railroad. $25,000.

N. Y., Yonkers and **Mount Vernon**—Bd. Supervs. Westchester Co., County Bldg., White Plains, surveys under way, extensive repairs, renovation, Fleetwood Viaduct, between Yonkers and Mt. Vernon. Over $25,000. Owner's engineer, engr.

North Carolina — State Hy. & P. Wks. Comn., Raleigh, bids soon bridge over Broad River, Route 10, between Harris, Rutherford Co., N. C. and Chesnee, S. C. W. L. Craven, Raleigh, bridge engr.

O., Kenton—Bd. Comrs. Hardin Co., grade elimination at Infirmary Hill, in conjunction with New York Central R.R. $90,000. R. L. Harvey, Court House, co. engr.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, overpass over Rock Island Lines at Howe, $70,000; over Missouri, Kansas & Texas Ry. at Checotah, $80,000. V. T. Moon, Capitol, Oklahoma City, engr.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, steel trusses and I-beams over Spring River at Miami, Ottawa Co., $110,000; overpass over Rock Island Lines at Calvin, Hughes Co., $80,000. V. T. Moon, Capitol, Oklahoma City, engr.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, bridge over Pryor Creek east of Claremore, Rogers Co. $30,000. V. T. Moon, Capitol, Oklahoma City, engr.

Okla., Adair — State Hy. Dpt., Capitol, Oklahoma City, 400 ft. I-beam bridge over Big Cabin Creek. $50,500. V. T. Moon, Capitol, engr.

Pa., Greenville—Bessemer & Lake Erie R.R., Greenville, F. R. Layng, ch. engr., Union Trust Bldg., Pittsburgh, eliminating main line grade crossing, S. Main St. Over $45,000. **Maturity later in 1939.**

Wash., Everett—Snohomish Co., bridge repairs and construction. $20,000. C. E. Hickey, Courthouse, engr.

Alta., Elk Point—Dpt. P. Wks., Edmonton, bids soon steel, concrete bridge over Saskatchewan River. $200,000. Hon. W. A. Fallow, Edmonton, minister Dpt. P. Wks.

Ont., Sudbury — W. B. McMullen, city engr., City Hall, recommending 530 ft. rigid frame, concrete bridge over railway tracks, Beech St. $115,000.

Ont., Toronto—Municipality and Canadian National R.R., C. B. Brown, ch. engr., 360 McGill St., Montreal, Que., subway under railroad tracks, Logan Ave. $40,000.

Ont., Toronto—Municipality subways under Canadian National R.R. tracks on Pape Ave., over $25,000; Woodbine Ave., over $25,000; Greenwood Ave., over $25,000. Canadian National R.R. T. T. Irving, ch. engr. (Central Region) Toronto, engrs.

Sask., Regina—Province of Saskatchewan, Regina, concrete, steel bridge over river at Sask Landing. $35,000 or more. Dpt. Hys., Regina, engrs.

BIDS ASKED

Bids Asked March 14

North Carolina—State Hy. & P. Wks. Comn., Raleigh, bridge and 0.56 mi. approaches over Catawba River, Project 6311, Mecklenburg and Gaston Counties, $100,000 to $125,000; structures on 6.56 mi. Project 5421, Guilford Co., $25,000 to $50,000; on 2.97 mi. Project 535, Rutherford Co., $50,000 to $75,000; 1.49 mi. approaches to overhead in High Point, and structures Project 5330, Guilford Co., $50,000 to $75,000; 0.57 mi. approaches and underpass under S. A. L. Ry., Project 4787, Wake Co., $50,000 to $75,000. W. V. Baise, Raleigh, engr.

South Carolina—State Hy. Dpt., Hotel Columbia, Columbia, substructure and superstructure rein.-con. and steel bridge over Atlantic Coast Line Ry. on Routes 15 and 521, Sumter, Sumter Co.; substructure and superstructure rein.-con. and steel bridge over Savannah River between Anderson, S. C. and Hartwell, Ga.; 214 ft. rein.-con., steel and treated timber bridge over Seaboard Air Line Ry. near Neeses, Orangeburg Co.; 225 ft. rein.-con. and steel bridge over Southern Ry. relocating U.S. Route 29 at Converse between Spartanburg and Gaffney, Spartanburg Co.; 229 ft. rein.-con., steel, treated timber bridge over Seaboard Air Line Ry., Sampit River, Butts St., Georgetown, Georgetown Co.; rein.-con. and steel bridge on Blossom St. and 0.554 mi. sheet asphalt surfacing on adjoining streets, Richland Co., 246 mi. bituminous surfacing to proposed bridge over Atlantic Coast Line Ry., in Ridgeland, Jasper Co.; relocation U.S. Route 29, concrete paving .885 mi. approaches bridge over Southern Ry. near Converse between Spartanburg and Gaffney, Spartanburg Co. J. S. Williamson, State Office Bldg., Columbia, hy. engr.

West Virginia—State Rd. Comn., Charleston, 0.593 mi. Goose Run concrete box culvert and approaches, grading, draining, gravel or slag surfacing, Project 1197-F, Cabell Co.; 0.294 mi. Manila Creek Bridge steel I-beam and approaches grading, draining, traffic bound gravel surfacing, State Project 5159, Putnam Co. M. R. Hamill, secy.

Bids Asked March 15

N. Y., Chesterfield—Delaware & Hudson R. R. Co., J. MacMartin, ch. engr., Plaza Bldg., Albany, grade crossing elimination at Town Rd. $36,000.

Bids Asked March 20

Missouri—State Hy. Comn., Jefferson City, C. W. Brown, engr., 85 ft. bridge over Dry Valley, Salem-Max Rd., Route SB, Project FAS 695 B1, 5¾ mi. southeast Salem, Dent Co.; repairing bridges, St. Charles-St. Louis Rd., Route 61, Project FA 79 B2, over Missouri River, St. Charles, St. Charles Co.; bridge over Kansas City Southern & Frisco R.R. tracks, Route 14, Project FAGM 56 B1, in Joplin, Jasper Co.; 95 ft. bridge over Haw Creek Slough, 3 mi. southwest Ashburn, State Rd. Ashburn-Louisiana Route ST, Project FAS 792 B1, Pike Co.; 28 ft. culvert type bridge over Horn Branch, 5½ mi. southwest Ashburn, Ashburn-Louisiana Rd., Route ST, Project FAS 792 B1, Pike Co.; 77 ft. bridge over Clark Branch, 1½ mi. east of Marceline, State Rd., Marceline East, Route SZ, Project FAS 826 B1, Linn Co.; 25 ft. bridge over North Fork Turnback Creek, 7 mi. south Everton, Everton-Halltown Rd., Route SM, Project FAS 389 C1, Lawrence Co.; 262½ ft. bridge over Old Channel Guard River, ¼ mi. south of Urich, Urich-Lucas Rd., Route SK, Project FAS 833 B1, Henry Co.; bridge over Joplin Creek, Route Joplin, Creek, Route 14, Project FAGM 56 B1, Joplin, Jasper Co.; 160 ft. bridge over Isle Du Bois Creek, Route 25, Project FA 9 C1-C2, St. Genevieve-Route 61 Rd., St. Genevieve Co.

Bids Asked March 21

Mass., Boston—City, G. G. Hyland, comr. P. Wks., City Hall Annex, rebuilding rein.-con., structural steel Berkeley St. Bridge. Over $40,000. PWA. CD 11/14.

Bids Asked March 22

Mich., Inkster—M. J. O'Brien, chn. Wayne Co. Rd. Comn., 3800 Berlum Tower, Detroit, grade separation at Inkster Rd. and Michigan Central R. R., concrete steel bridge, grading.

(Contract Unit Prices continued from page 13)

HIGHWAYS, ARIZONA

OWNER: Arizona State Highway Department; Howard A. Reed, engineer.

PROJECT: Highway work on Benson-Steins Pass highway, from a point two miles southeast of Bowie Junction, 7⅔ mi. to the town of Bowie. Work consists of grading, draining, aggregate base course and oil processing (MC-4 cutback road mix).

BIDS: Eleven bids were received Feb. 17, 1939, ranging from $146,751 to $174,793.

LOW BIDDERS:

1. Tanner Construction Co., Phoenix, Ariz......$146,751
2. J. A. Casson Co., Phoenix, Ariz............. 150,341
3. Skousen Bros., Contractors, Albuquerque, N. M. 151,233

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Roadway excav. (Uncl.)	25,562 c. y.	.15	.16	.18
2. Drainage excav. (Uncl.)	27,889 c. y.	.14	.13	.15
3. Grader ditches	18,150 l. f.	.02	.01	.03
4. Crown ditches	1,550 l. f.	.05	.05	.08
5. Structural excav. (Uncl.)	3,740 c. y.	.50	.75	1.00
6. Station yard overhaul	35,633 sta. yd.	.01	.01	.01
7. Cubic yard mile haul	697 c. y. mi.	.20	.10	.20
8. Imported borrow	89,830 c. y.	.16	.18	.19
9. Select material	46,032 c. y.	.22	.25	.22
10 Aggregate Base Course	25,120 tons	.45	.42	.42
11. Stripping Pits	20,900 c. y.	.08	.10	.05
12. Sprinkling	6,295 m. gal.	1.00	1.00	1.15
13. Rolling	1,710 hr.	2.50	2.25	2.50
14. Class "A" Concrete	2,186 c. y.	17.00	17.00	16.50
15. Reinforcing Steel (Bars)	226,990 lb.	.04	.044	.042
16. 18" C.M.P	110 l. f.	1.75	2.00	3.30
17. 24" C.M.P	298 l. f.	2.70	3.00	4.00
18. 30" C.M.P	410 l. f.	3.00	3.25	5.80
19. 36" C.M.P	188 l. f.	5.00	5.00	6.50
20. Cattle Guard (Except Excavation and Concrete)	1 ea.	500.00	550.00	550.00
21. Cattle Guard (Sideroad Except Excavation and Concrete)	2 ea.	250.00	250.00	300.00
22. Standard line fence	72,826 l. f.	.06	.065	.05
23. Standard wire gates (type 2)	21 ea.	7.00	10.00	5.00
24. Standard steel gates (type 1)	1 ea.	20.00	20.00	25.00
25. Rail bank protection (type "A")	90 l. f.	2.50	5.00	3.00
26. Guide posts	76 ea.	2.00	3.00	2.50
27. R/W markers (type "E")	85 ea.	2.00	3.00	3.00
28. Mineral aggregate	13,659 tons	.45	.42	.50
29. Cutback asphalt (MC-4)	707 ton	20.00	17.60	17.30
30. Processing road mix	7.664 mi.	400.00	400.00	450.00
31. Emulsified asphalt (Class "A") (for seal coat)	224 ton	26.00	25.00	25.00
32. Screenings	1,610 ton	2.00	2.50	1.50
33. Placing intersect	362 s. y.	.20	.20	.20
34. Stockpiling dry aggregate	500 ton	.40	.50	.50

HIGHWAY BRIDGE, IOWA

OWNER: Iowa Highway Commission, Ames; F. R. White, chief engineer.

PROJECT: Construction of a 615-ft. five-span deck plate girder bridge over Cedar River on Park Ave. in Waterloo. Bridge is to have two 24-ft. divided roadways and two 6-ft. sidewalks. Project includes grading and paving the approach roadway. Pier footings are founded on rock about 7 ft. below stream bed and abutments are on steel pilings extending to rock. Bridge is located above a dam which keeps the depth of water at a minimum of 10 ft. Stipulated contract time is 270 calendar days. Transportation facilities by rail and highway are available.

BIDS: Seven bids were received Jan. 31, 1939, ranging from the contract low of $203,797 to $226,853. Minimum labor rates are as follows: skilled, $1.00 per hr.; semi-skilled, 75c. per hr.; common, 60c. per hr.

LOW BIDDERS:

1. A. Guthrie & Co., St. Paul (contract)........$203,797
2. Koss Construction Co., Des Moines.......... 204,287
3. A. Olson Construction Co., Waterloo......... 210,908

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Class "A" conc. masonry	1,278 c. y.	20.00	24.50	25.30
2. Spl. high str. conc	794 c. y.	20.50	24.50	25.30
3. Reinf	332,945 lb.	.04	.04	.04
4. Fabric struc. steel	1,962,450 lb.	.06	.0565	.055
5. Handrail & post steel	48,330 lb.	.10	.09	.10
6. Steel pile	1,148 l. f.	2.00	2.00	2.00
7. Steel test piling	60 l. f.	3.50	3.75	3.00
8. Cl. I excav	140 c. y.	2.00	1.50	1.00
9. Cl. II excav	771 c. y.	10.00	14.00	10.00
10. Damp-proofing	15 s. y.	15.00	18.00	15.00
11. Lighting system	L.S.	2,200.00	4,000.00	2,500.00
12. Roadway excav	2,526 c. y.	.50	.60	.30
13. Removal old pav	2,029 s. y.	.50	.35	.40
14. Std. conc. pav	2,920 s. y.	2.50	3.00	2.75
15. Conc. sidewalk	5,211 s. f.	.25	.20	.20
16. Type E double intakes	2 ea.	75.00	75.00	100.00
17. 15-in. reinf. conc. pipe	132 l. f.	3.25	2.50	2.00
18. 18-in. reinf. conc. pipe	160 l. f.	3.50	3.00	2.50
19. Manholes	1 ea.	100.00	50.00	35.00

LEVEE WORK, ILLINOIS

OWNER: U. S. Engineers; Rock Island office.

PROJECT: Construction of Penny Slough levees, culverts and drainage ditches along the Rock River in Whiteside and Henry counties, Illinois.

BIDS: Seven bids were received Jan. 4, 1939, ranging from the contract low of $71,711 to $196,537.

LOW BIDDERS:

1. Matthews Bros. Const. Co., Erie, Ill. (contract) $71,711
2. D. B. Bayles, Paxton, Ill..................... 88,125
3. Chernus Construction Co., St. Louis, Mo...... 99,169

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Fill levee	46,500 c. y.	0.1187	0.16	0.1774
2. Excav. ditches	16,100 c. y.	0.1187	0.10	0.1774
3. Stone protect. riprap	475 c. y.	3.50	8.00	8.50
4. Stone protect. cr. or gravel	175 c. y.	1.50	5.00	3.50
5. Pipe; culv. cor., 15-in. incl. 1 gate	84 l. f.	3.50	2.34 *13.35	2.75
6. Pipe; culv. cor., 24-in. incl. 1 gate	124 l. f.	5.00	2.83 *27.45	4.50
7. Pipe; culv. cor., 36-in. incl. 1 gate	128.5 l. f.	9.25	4.92 *58.77	6.50
8. Pipe; culv. cor., 42-in. incl. 4 gates	527 l. f.	12.50	6.57 *87.45	8.50
9. Pipe; culv. cor., 48-in. incl. 2 gates	279 l. f.	14.30	7.55 *121.26	11.00

* Indicates unit price per gate.

WATER SYSTEM, MICHIGAN

OWNER: City of Grand Beach, Mich.

PROJECT: Construction of water supply system, including beach intake with screen, concrete reservoir, pumping station and cast iron water pipe. Water pipe includes 20,330 ft. of 4-, 6-, and 8-in. pipe. 5-ft. cover over main is specified. Stipulated contract time is 150 calendar days; transportation is by truck. Trenches are being dug in Lake Michigan beach sand and the pipe is to be laid under black top pavement. Contractor is restoring pavement.

BIDS: Eight bids were received Dec. 10, 1938, ranging from the contract low of $49,378 to $68,576. Minimum wage rates are as follows: skilled, 90c. per hr.; semi-skilled, 55c. per hr.; common, 45c. per hr.

LOW BIDDERS:

1. A. F. Hartigan, Chicago (contract)...........$49,378
2. Thornton Construction Co., Hancock, Mich.... 53,544
3. P. VanderVeen & Son, Grand Rapids, Mich.... 56,527

Item	Quan.	Unit Prices (Incomplete) (1)	(2)	(3)
1. 4-in. C.I. water main	12,815 l. f.	1.38	1.00	1.28
2. 6-in. C.I. water main	3,360 l. f.	1.80	1.30	1.55
3. 8-in. C.I. water main	4,155 l. f.	2.23	1.69	2.04
4. 1-in. copper service	3,000 l. f.	0.50	0.50	0.60
5. 4-in. valve, valve well	4 ea.	70.00	95.00	70.00
6. 6-in. valve, valve well	5 ea.	80.00	95.00	80.00
7. 8-in. valve, valve well	2 ea.	95.00	100.00	90.00
8. Hydrant, valve, valve box	24 ea.	105.00	100.00	105.00
9. 1-in. corporation cocks	140 ea.	3.00	2.75	3.00
10. 1-in. stopcock and box	140 ea.	8.00	5.00	6.00

Bridges, etc. (Continued)

draining, watermains, paving and related work. Over $100,000. PWA. L. C. Smith, 3800 Barium Tower, Detroit, engr.

New Jersey—E. D. Sterner, comr. State Hy. Dpt., Trenton, north approach piers of Raritan River Bridge on S.H. 35, Sect. 14, Boro of Sayreville and Woodbridge Twp., Middlesex Co., grading, rein.-con. paving 1.044 mi. Virginia Ave. 3rd Sect. Upper Penns Neck Twp., Salem Co.; 2.862 mi. Route 37 Sect. 9, Cream Ridge to Hornerstown, Monmouth and Ocean Counties. PWA.; adv. ENR 3/9.

Bids Asked March 23

California—State Hy. Dpt., Los Angeles, 432 ft. rein.-con. box girder bridge, Arroyo Seco Parkway, near Hough St., Los Angeles Co. Over $25,000.

Neb., Fremont—Dodge Co., D. J. Arundel, clk., bridges and culverts. Bids Feb. 16 rejected. CD 1/31—ENR 2/2.

Bids Asked March 28

N. Y., Yonkers—Bd. Supervs. Westchester Co., White Plains, steel plate girder bridge to carry N. Y. Central R. R. tracks over Cross County Parkway at Dunwoodie, Yonkers.

Bids Asked March 31

Massachusetts — Commonwealth of Massachusetts, Dpt. P. Wks., W. F. Callahan, comr., 100 Nashua St., Boston, steel stringer bridge, concrete deck, Class 1 bituminous concrete paving 14,320 sq. yd. approaches, Bernardston and Greenfield. $125,000; steel stringer bridge 13,790 sq. yd. Class 1 bituminous concrete approaches, Bellingham and Blackstone, $75,000.

Bids Asked April 3

Ont., Oshawa—R. M. Smith, deputy minister Dpt. P. Wks., Toronto, 4 concrete bridges various locations. $100,000 plus grading. A. Sedgwich, Dpt. Hys., Toronto, engr.

Ont., Toronto—R. M. Smith, deputy minister Dpt. P. Wks., steel bridge, concrete fdn. over Jones Creek, over $25,000; steel bridge on concrete fdn. over Langdon Bay, over $25,000, for Provincial Govt. A Sedgwich, Dpt. Hys., engr.

CONTRACTS AWARDED

Arizona—State Hy. Comn., Phoenix, steel girder bridge Kingman Needles Hy., Mohave Co., to Tanner Constr. Co., Security Bldg., Phoenix, **$23,643.** Bids 2/28, awarded 3/3. CD 2/16.

Arizona—State Hy. Comn., Phoenix, replacing culvert on Gila Bend-Yuma Hy., Maricopa Co., to Fisher Constr. Co., 516 S. 7 Ave., Phoenix, **$10,174.** Bids 3/3. CD 2/27.

California—C. H. Purcell, engr. State Hy. Dpt., P. Wks. Bldg., Sacramento, rein.-con. girder bridge, over Paso Robles Creek, 6 mi. north Paso Robles, San Luis Obispo Co., to C. W. Calletti, P. O. Box 243, San Rafael, **$42,326;** 2 rein.-con. slab bridges, retaining walls, grading, armor coat on gravel surfacing 3.2 mi. hy. between Northwood Park and Guerneville, Sonoma Co., to Heafey-Moore Co. and Frederickson & Watson Constr. Co., 873-81 Ave., Oakland, **$184,009.** Bids 2/15. CD 1/30—ENR 2/2.

Florida—State Hy. Dpt., Tallahassee, bridge on Rd. 44 between Lake and Seminole Counties to Parks Bridge Co., Orlando, **$38,806.**

Idaho—A. C. Merritt, comr. P. Wks., Boise, steel, timber bridge over Rock Creek on Pole Line Rd. near Twin Falls, to D. J. Cavanaugh, Twin Falls, **$59,826.** Bids 12/20. CD 12/15.

Illinois—State Hy. Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield, rein.-con. substructure I-beam superstructure, Sect. KV-B, La Salle Co., to Arcole Constr. Co., 221 N. LaSalle St., Chicago, **$20,714***** fabrication, delivering f.o.b. bridge site I-beam superstructure, same bridge, to Fort Pitt Bridge Wks., Oliver Bldg., Pittsburgh, Pa., **$5,558*****rein.-con. substructure, I-beam superstructure Sect. SY-SB-1, Lake Co., to Kapschull & Co., Deerfield, **$23,858;** fabrication and delivery f.o.b. bridge site I-beam superstructure, same bridge, Sect. SY-SF-1, to American Bridge Co., 208 S. LaSalle St., Chicago, **$9,198.** Grand total $59,328. Bids 1/27. CD 1/11.

Ill., Chicago—Chicago Park Dist., 14 St. and Outer Dr., steel girders, concrete floor 11th St. pedestrian bridge over Central R. R. tracks to Ketler Elliott Co., 3101 S. California Ave. **$26,000.**

Ind., Fort Wayne—See "Roads."

Ky., Livermore — Dpt. Hys., Frankfort, bridge over Green River, Contr. B, substructure, to Sandy Hites Co., City Bank Bldg., Kansas City, Mo., **$120,360*****Contr. C, superstructure, to Bethlehem Steel Co., Bethlehem, Pa., **$173,621*****Contr. D, approaches, to A. Snider, Danville, **$19,733.** Grand total $313,715. Bids 2/24. CD 2/3—ENR 2/9.

Mass., Cambridge—Commonwealth of Massachusetts, Metropolitan Dist. Comn., Parks Div., W. E. Whittaker, secy., 20 Somerset St., Boston, Contr. 3, Cottage Farm bridge overpass, rein.-con., steel, to Coleman Bros. Corp., 245 State St., Boston, **$264,831.** Bids 3/2 awarded 3/3. CD 2/15—ENR 2/23.

Neb., David City—Butler Co., bridges, concrete work for year 1939, to David City Concrete Co., David City. Bids 2/15. CD 1/31—ENR 2/2.

Neb., McCook — Red Willow Co., steel, wooden bridges in county, to General Constr. Co., 934 Redick Tower, Omaha, Neb., about **$25,000.**

New Jersey—E. D. Sterner, comr. Hy. Dpt., Trenton, 5 bridges Route 6, in Clifton, Passaic Co., to Ell-Dorer Contg. Co., 644 Nye Ave., Irvington, **$282,289.** Bids 2/24. CD 2/2—ENR 2/9.

N. Y., Durham and **Lodi**—Villages, steel, concrete bridge, roadway approaches, in Durham and log cribbing abutments, new floor, on Cat's Elbow bridge, Lodi. **WPA. $25,000.**

N. Y., Owego—See "Roads."

N. Y., White Plains—Westchester County Park Comn., County Office Bldg., Contr. 415, Fleetwood Toll Bridge, on Cross County Parkway, in Mount Vernon and Yonkers, at Dunwoodie and Yonkers, to Foley Bros. Inc., Pleasantville. Est. **$247,022.** Bids 2/24. CD 1/13—ENR 1/13.

Okla., Asher—Pottawatomie Co. (Shawnee), 460 ft. rein.-con. bridge, **WPA. $60,653.** F. D. Brown, Shawnee, engr.

Okla., Westville—Adair Co. (Stilwell), 15 masonry culverts, near here, **WPA. $43,800.** R. Lindsay, Old Court House, Oklahoma City, engr.

★**Texas**—State Hy. Comn., R. L. Babbitt, chn., Austin, constructing M. K. & T. Ry. underpass and Bull Brack Bridge, Williamson Co., to L. H. Lacy Co., 3009 N. Henderson St., Dallas, **$142,036,** est. $160,000***North and South San Gabriel River bridges, Williamson Co., to Dean Word, 139 E. Rosewood St., San Antonio, **$189,935,** est. $200,000***steel jetty bank protection at bridge over Colorado River, Bastrop Co., and bank protection at bridge over Colorado River, Matagorda Co., to Kellner Jetties, Inc., 415 E. Gordon St., Topeka, Kan., **$3,264** and **$7,470** respectively, est. $4,000 and $8,000 respectively***constructing T. & P. R.R. and I. & G. R.R. underpass and roadway approaches, Gregg Co., and protection work on Lavaca Bay Causeway, Calhoun Co., to Austin Bridge Co., 1813 Clarence St., Dallas, **$195,389** and **$12,189** respectively, est. $200,000 and $15,000 respectively***South Chambers Creek Bridge and roadway approaches, Johnson Co., to J. F. Buckner, Cleburne, **$16,261,** est. $20,000***Salt Fork of Red River Bridge, Collingsworth Co., to Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Pa., **$190,989,** est. $190,000***Salt Fork of Red River Bridge, Collingsworth Co., to Purvis & Bertram Constr. Co., 112½ W. 9 St., Fort Worth, **$126,163,** est. $130,000*** widening existing Marathon Creek Bridge and approaches, Brewster Co., to Allhands & Swatzell, Inc., Southwest Life Bldg., Dallas, **$4,457,** est. $5,000. Grand total $888,153. Bids 2/21. CD 2/14—ENR 2/16.

Virginia—State Dpt. Hys., Richmond, bridges, Henry Co., to R. W. Moore, Box 503, Staunton, **$18,826*****Clarke Co., to Blackwell Eng. & Constr. Co., Warrenton, **$136,725*****Mathews Co., to Bowers Constr. Co., Whiteville, N. C., **$128,329;** underpass and approaches in Norfolk, to W. N. Jackson, Roanoke, **$124,212.** Grand total $408,093. Bids 2/16. CD 2/7—ENR 2/9.

Wyoming—State Hy. Comn., Cheyenne, I-beam span bridge and 4 rein.-con. culverts on 5.515 mi. road, Fremont Co., to C. M. Smith, Thermopolis, **$35,249,** est. $39,453; pedestrian overhead crossing and sidewalk approaches over Oregon Short Line R.R. tracks at Kemmerer, Lincoln Co., to G. M. Carruth & Son, Evanston, **$9,904,** est. $10,355. Bids 2/28. CD 2/20.

STREETS AND ROADS

PROPOSED WORK

★**Tex., Dallas**—Dallas Co., B. H. Fly, election soon to vote $900,000 bonds, road work. R. H. Clinger, County Records Bldg., engr.

BIDS ASKED

Bids Asked March 13

Mass., Medford—Concrete street imprvs. Over $25,000. PWA. H. J. Nicholson, city engr.

N. Y., Brooklyn—President Brooklyn Boro, Boro Hall, permanent asphalt repaving Parkville Ave., E. 26, 8, 17 and 51 Sts.; Glenmore, St. Nicholas, Greene and Lafayette Aves., Lynch, Russell and Sackman Sts.

N. Y., St. George — President Richmond Boro, Boro Hall, bituminous concrete repaving New St., Castleton, Anderson, Richmond and Norwood Aves.; asphalt block repaving Westervelt Ave. and Pauw St.

Bids Asked March 14

D. C., Wash. — District Comrs., District Bldg., grading various streets. $161,000.

N. Y., Long Island City—President Queens Boro, Queens Subway Bldg., 21-10 49 Ave., sheet asphalt on existing macadam paving Springfield Blvd.; regulating, paving, in Connecting Hy. (Laurel Hill Blvd.) repaving Connecting Hy. from 61 to 64 Sts.; furnishing, delivering, materials, rented equip. at New York Blvd., between Sayres Ave. and Sunrise Hy.; asphaltic concrete on existing concrete repaving 94 St., Woodside Ave.; asphalt block repaving Northern Blvd.; asphaltic concrete repaving Madison St., Queens Blvd., Woodbine St., 25 Rd. (N. Washington Pl.); Crescent St., etc.

N. Y., New York — President Manhattan Boro, Municipal Bldg., sheet asphalt repaving W. 96, Duane, 41, 52, 56, 58, E. 96 and E. 84 Sts.

★**North Carolina** — State Hy. & P. Wks. Comn., Raleigh, grading, E.T.B. course and bituminous surface treating 3.07 mi. County Project 166, Nash Co., $15,000 to $25,000; grading, E.T.B. course, bituminous surface treating and structures 3.32 mi. Project 1605, Nash Co., $25,000 to $50,000; 9 mi. Project 3942, Robeson and Bladen Counties roadway $75,000 to $100,000, structures under $15,000; 2.8 mi. Project 167, Nash Co., $15,000 to $25,000; grading, sand asphalt base and surface course paving 12.98 mi. Project 3661, Onslow Co., $125,000 to $150,000; grading, sand asphalt base, surface course and structures 7.59 mi. Project 2580, Lenoir Co., roadway $75,000 to $100,000, structures $15,000 to $25,000; 5.98 mi. Project 3590, New Hanover Co., $75,000 to $100,000; grading 3.58 mi. Project 279, Robeson Co., under $15,000; grading and structures 5.18 mi. Project 2190, Duplin Co., $25,000 to $50,000; grading, concrete widening, structures 3.48 mi. Project 1831, Pitt Co., $25,000 to $50,000; grading, T.B.M. surface bituminous surface treating and structures 2.17 mi. Project 7954, Yadkin Co., $50,000 to $75,000; grading, T.B.M. surface, bituminous surface treating 6.56 mi. Project 5421, Guilford Co., $100,000 to $125,000; 2.97 mi. Project 535, Rutherford Co., $75,000 to $100,000; grading, concrete paving, structures 2.5 mi. Project 4016, Chatham Co., $50,000 to $75,000; grading, concrete paving 16.28 mi. Project 466, Mecklenburg Co., $300,000 to $400,000. W. V. Baise, Raleigh, engr.

West Virginia—State Rd. Comn., Charleston, grading, draining, base road mix on macadam surfacing 3.426 mi. U.S. Route 19, State Project 5279, Harrison Co.; grading, draining, macadam base and surface treating 2.788 mi. Largent-Hampshire Co. line Rd., Morgan and Hampshire Counties; 1.831 mi. Nallen Relocation, Nicholas and Fayette Counties; grading, draining, gravel or slag surfacing 2.288 mi. St. Mary's-Ritchie Co. line Rd., Pleasants and Ritchie Counties. M. R. Hamill, secy.

Bids Asked March 15

Ill., Monmouth—Warren Co., grading or crushed stone surfacing 2.9613 mi. Sect. 57; 3.2663 mi. Sect. 58; 2.4873 mi. Sect. 59; 1.91299 mi. Sect. 61; 1.8646 mi. Sect. 63; 3.0426 mi. Sect. 65; 3.9899 mi. Sect. 66; 4.8162 mi. Sect. 67; 0.625 mi. Sect. 68; 1.5030 mi. Sect. 69; 1.9919 mi. Sect. 70; 1.0062 mi. Sect. 71; 1.052 mi. Sect. 72; 1.7180 mi. Sect. 74; earth grading 2.9613 mi. Sect. 57A; 3.2663 mi. Sect. 58A; 2.4873 mi. Sect. 59A; 1.9129 mi. Sect. 61A; 1.86846 mi. Sect. 63A; 3.0426 mi. Sect. 65A; 3.9899 mi. Sect. 66A; 4.8162 mi. Sect. 67A; 0.625 mi. Sect. 68A; 1.503 mi. Sect. 69A; 1.9919 mi. Sect. 70A; 1.0062 mi. Sect. 71A; 1.052 mi. Sect. 72A; 1.718 mi. Sect. 74A.

Minn., Elbow Lake—Grant Co., grading Sects. 8, 9, 10, 11, 12, 15, 19 and 20 of county road imprv., also bridge for Sect. 5. Total est. $213,500. W. E. Burgess, co. engr.

S. C., Newberry—Comrs. Newberry Co., 369,042 sq. yd. bituminous surface treating, 149,900 lin. ft. mixing and shaping earth type base course, etc. H. H. Huff, superv.

Bids Asked March 16

Minn., Blue Earth—Faribault Co., grading, graveling Sects. 3, 5 and 7 of county road imprv. $176,155. PWA. L. Quarve, hy. engr.

N. Y., Buffalo—L. A. Harding, comr. P. Wks., City Hall, paving sections of Ellicott, Marshall, Babcock Sts., Academy Rd., St. Mary's Rd. Over $25,000. (**Correction**—Bid date and location of project.) CD 3/1.

Bids Asked March 17

Kansas—State Hy. Comn., Topeka, resurfacing material paving 1.58 mi. P. 28127, Geary Co.; 18.01 mi. P. 1664; 11.16 mi. P. 1667, 2.78 mi. P. 1856, all foregoing Riley Co.; 8.08 mi. P. 1665; and 10.39 mi. P. 1666, both Marshall Co. A. B. Nuss, Topeka, engr.

Pennsylvania—Pennsylvania Turnpike Comn., J. D. Faller, secy.-treas., 11 N. 4 St., Harrisburg, grading, drainage, rein.-con. structures, 7½ mi. Sect. 8C and 9A, turnpike, Somerset and Stony Creek Twps., Somerset Co. R. B. Stone, c/o owner, engr.

Bids Asked March 20

Minn., Chaska—Carver Co., bituminous work on Sects. 6, 7 and 8, bridges on Sects. 4 and 5, county road imprv. $258,800. PWA. L. Zeman, co. engr.

Missouri—State Hy. Dpt., Jefferson City, bituminous stabilization aggregate clay base and bituminous material surfacing 3.66 mi. Wyatt-Birds Point Rd., Route 60, Project ER 21, Mississippi Co. C. W. Brown, Jefferson City, hy. engr.

Missouri—State Hy. Dpt., Jefferson City, grading, concrete paving 0.358 mi. road from Stanberry-King City Rd., Route 169, Project FAS 54 B 2, Gentry Co. Under $25,000. C. W. Brown, Jefferson City, engr. hys.

Bids Asked March 21

Florida—State Rd. Dpt., Tallahassee, lime rock base, surface treating, widening timber bridges, driving additional piling, construct-